# Study plan

## Name of study plan: Fyzikální inženýrství - Fyzikální inženýrství materiál

Faculty/Institute/Others:
Department:
Branch of study guaranteed by the department: Welcome page
Garantor of the study branch:
Program of study: Physical Engineering
Type of study: Bachelor full-time
Required credits: 6
Elective courses credits: 174
Sum of credits in the plan: 180
Note on the plan:

Name of the block: Compulsory courses in the specialization Minimal number of credits of the block: 0 The role of the block: PS

Code of the group: BSPFIFIM1 Name of the group: BS P\_FIB FIM 1st year Requirement credits in the group: Requirement courses in the group: In this group you have to complete at least 13 courses Credits in the group: 0 Note on the group: Podmínkou skládání zkoušky 01MANZ je získání zápočtu z 01MAN. Podmínkou skládání

zkoušky 01LALZ je získání zápočtu z 01LAL.

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)	Completion	Credits	Scope	Semester	Role
	Tutors, authors and guarantors (gar.)					
02ELMA	Electricity and Magnetism Iskender Yalcinkaya, Josef Schmidt, Ji í Hrivnák, Goce Chadzitaskos, Jan Vysoký Jan Vysoký Josef Schmidt (Gar.)	Z,ZK	6	4+2	L	PS
01LAL	Linear Algebra 1 Petr Ambrož, Lubomíra Dvo áková Lubomíra Dvo áková Lubomíra Dvo áková (Gar.)	z	2	2P+2C		PS
01LALZ	Linear Algebra 1, exam Petr Ambrož, Lubomíra Dvo áková Lubomíra Dvo áková Lubomíra Dvo áková (Gar.)	ZK	2	0P+0C		PS
01LAL2	<b>Linear Algebra 2</b> Petr Ambrož, Lubomíra Dvo áková <b>Lubomíra Dvo áková</b> Lubomíra Dvo áková (Gar.)	Z,ZK	4	2P+2C		PS
01MAN	<b>Calculus 1</b> Pavel Strachota, Miroslav Kolá, Edita Pelantová <b>Pavel Strachota</b> Pavel Strachota (Gar.)	z	4	4+4		PS
01MANZ	<b>Calculus 1, exam</b> Pavel Strachota, Miroslav Kolá, Edita Pelantová <b>Pavel Strachota</b> Pavel Strachota (Gar.)	ZK	4	0P+0C		PS
01MAN2	Calculus 2 Miroslav Kolá, Edita Pelantová, Maksym Dreval Edita Pelantová Maksym Dreval (Gar.)	Z,ZK	8	4P+4C		PS
02MECH	<b>Mechanics</b> David B e <b>Antonín Hoskovec</b> David B e (Gar.)	Z	4	4+2	Z	PS
02MECHZ	<b>Mechanics - Examination</b> Iskender Yalcinkaya, Goce Chadzitaskos, Stanislav Skoupý, Petr Novotný, David B e , Filip Petrásek, Antonín Hoskovec <b>Antonín Hoskovec</b> David B e (Gar.)	ZK	2	-	Z	PS
00PT	Preparatory Week Petr Ambrož, Milan Krbálek Petr Ambrož Petr Ambrož (Gar.)	Z	2	týden	Z	PS
02TER	Heat and Molecular Physics Filip Petrásek Petr Novotný Petr Jizba (Gar.)	Z,ZK	4	2+2	L	PS
17UING	Introduction to Engineering Jan Frýbort, Petr Haušild, Radek Mušálek <b>Jan Frýbort</b> Jan Frýbort (Gar.)	KZ	3	2P+1C	Z	PS

18ZPRO Basics of Programming Maksym Dreval, Nichita Vatamaniuc, Jan Vondruška, Vladimír Jarý, Miroslav Virius, Jakub Klinkovský, Petr Pauš, František Vold ich, Jan Tomsa, Miroslav Virius, Miroslav, Virius (Gar.)	Z	4	4C	z	PS
---	---	---	----	---	----

Characteristics of	the courses of this group of Study Plan: Code=BSPFIFIM1 Name=BS P_FIB FIM 1st year		
02ELMA	Electricity and Magnetism	Z,ZK	6
Electric charge, Coulorr	b's law, electrostatic field, Gauss' law. Electric dipole, polarization. Conductors and dielectrics. Electric current and circuits, c	nductivity. Basics	of the relativity
theory. Electrodynamic	orces, magnetic field. Magnetic dipole, magnetics. Electromagnetic induction, RLC circuits. Electromagnetic waves, Maxwell	equations.	
01LAL	Linear Algebra 1	Z	2
1. Vector space. 2. Linea	ar dependence and independence. 3. Basis and dimension. 4. Subspaces of vector spaces. 5. Linear mappings. 6. Matrices of	linear mappings.	7. Frobenius
theorem.			
01LALZ	Linear Algebra 1, exam	ZK	2
01LAL2	Linear Algebra 2	Z,ZK	4
Outline: 1. Inverse matri	x and operator. 2. Permutation and determinant. 3. Spectral theory (eigenvalue, eigenvector, diagonalization). 4. Hermitian an	d quadratic forms	. 5. Scalar
product and orthogonal	ty. 6. Metric geometry. 7. Riesz theorem and adjoint operator. Outline of the exercises: 1. Methods for calculation of inverse material sectors and adjoint operator.	atrices. 2. Method	is of calculation
of determinants. 3. Calc	ulation of eigenvalues and eigenvectors. 4. Hermitian and quadratic forms. Canonical form. 5. Scalar product and orthogonalit	y. Calculation of o	orthogonal
complements. 6. Geome	etry exercises and examples. 7. Adjoint operators.		
01MAN	Calculus 1	Z	4
Basic calculus (real ana	lysis, functions of one real variable, differential calculus).	-	
01MANZ	Calculus 1, exam	ZK	4
01MAN2	Calculus 2	Z,ZK	8
1. Continuation of different	ential calculus: Taylor's Polynomials, Taylor's formula 2. Infinite series: criteria of convergence, operations on series, absolute	and conditional c	onvergence 3.
Real and complex powe	r series, the Cauchy-Hadamard theorem, expansion of function into power series, summation of infinite series. 4. Theory of int	egrals: primitives,	definite integral
(Riemann definition), te	chniques of integration and application of integrals, Generalized Riemann integral		
02MECH	Mechanics	Z	4
Introduction to physics,	physical quantities and units. Kinematics of a particle, basic types of motion and their superposition. Dynamics of a particle, s	olving equations	of motion for
one-dimensional motior	I, motion in a central force field, forces in non-inertial reference frames. Mechanics of a system of particles, two-body problem	s, particle collisio	ns. Mechanics
of a rigid body, rotation.			
02MECHZ	Mechanics - Examination	ZK	2
The content of the subje	ect is the examination according to the plan of studies.		
00PT	Preparatory Week	Z	2
02TER	Heat and Molecular Physics	Z,ZK	4
Thermal expansion of m	naterials, heat transfer; stationary and non-stationary heat conduction, heat transfer and penetration; 1st and 2nd thermodyna	mic principle, ide	al and real gas,
entropy; non-chemical s	ystems: dielectric and magnetic materials; Maxwell relations and thermodynamic potentials; kinetic theory: Maxwell's velocity of	distribution,equipa	artition theorem.
17UING	Introduction to Engineering	KZ	3
This course provides inf	roduction to engineering skills. Students should gain general engineering skills at basic level (e.g. material properties and bel	navior, basics of r	nanufacturing
and production, quality	assurance, environmental impacts,). In addition, the introduction to scientific work and technical drawing will be included.		
18ZPRO	Basics of Programming	Z	4
This course is intended	mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in program	ming and with the	e Python
programming language.			

### Code of the group: BSPFIFIM2

Name of the group: BS P\_FIB FIM 2nd year

Requirement credits in the group:

Requirement courses in the group: In this group you have to complete at least 9 courses Credits in the group: 0

Note on the group:

Předmět 02TEF1 lze absolvovat až po absolvování předmětu 02MECHZ.

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
14DYLS	<b>Dynamics of Linear Systems</b> Ji í Kunz <b>Ji í Kunz</b> Ji í Kunz (Gar.)	Z,ZK	2	1P+1C	6	PS
14ELM	Electron Microscopy Miroslav Karlík Miroslav Karlík (Gar.)	KZ	2	2P+0C		PS
01ANB3	Calculus B 3 Miroslav Kolá , Milan Krbálek Milan Krbálek Miroslav Kolá (Gar.)	Z,ZK	8	4P+4C		PS
01ANB4	<b>Calculus B 4</b> Ji í Mikyška, Miroslav Kolá <b>Ji í Mikyška</b> Milan Krbálek (Gar.)	Z,ZK	6	2P+4C		PS
12NME1	Numerical Methods 1 Pavel Váchal Pavel Váchal (Gar.)	Z,ZK	4	2+2	L	PS
14TEM	Engineering Mechanics Ji í Kunz <b>Ji í Kunz</b> Ji í Kunz (Gar.)	Z,ZK	6	4	5	PS
02TEF1	Theoretical Physics 1 Petr Novotný Michal Jex Igor Jex (Gar.)	Z,ZK	4	2+2	Z	PS
02TSFA	Thermodynamics and Statistical Physics Igor Jex, Jaroslav Novotný Antonín Hoskovec Igor Jex (Gar.)	Z,ZK	4	2+2	L	PS
02VOAF	Waves, Optics and Atomic Physics Josef Schmidt Jan Vysoký Ji í Tolar (Gar.)	Z,ZK	6	4+2	Z	PS

Characteristics of the courses of this group of Study Plan: Code=BSPFIFIM2 Name=BS P_FIB FIM 2nd year						
14DYLS Dynamics of Linear Systems	Z,ZK	2				
Abstract: Modelling of linear mechanical systems by means of simple computational system of discrete elements. Free and/or forced vibration of mechanical systems with one or two						
degrees of freedom. Kinetic equations of motion - their determination and solution. Analysis of motion stability.						
14ELM Electron Microscopy	KZ	2				
Abstract: In this course the students are introduced to the microscopic methods used for the characterization of materials, thin layers or nanoparticles	The introductory	part is dedicated				
to the analogy of light and electron microscopy and to various types of microscopes. An important part of the course is given to the interaction of diffe	erent types of radia	tion with matter,				
mathematical formulations and tools used in microscopy and to the description of particular parts of the microscopes. Introduction to kinematic and of	lynamic theory of o	diffraction, types				
of contrast, and diffraction and imaging techniques are also covered. A particular attention is given to analytical methods and imaging techniques in	atomic resolution.					
01ANB3 Calculus B 3	Z,ZK	8				
1. Functional sequences and series - convergence range, criteria of uniform convergence, continuity, limit, differentiation and integration of functional	I series, power se	ries, Series				
Expansion, Taylor's theorem. 2. Ordinary differential equations - equations of first order (method of integration factor, equation of Bernoulli, separation	on of variables, ho	mogeneous				
equation and exact equation) and equations of higher order (fundamental system, reduction of order, variation of parameters, equations with constant	coefficients and sp	becial right-hand				
side, Euler differential equation). 3. Metric spaces - metric, norm, scalar product, neighborhood, interior and exterior points, boundary point, isolated	and non-isolated	point, boundary				
of set, completeness of space, Hilbert spaces. Orthogonal polynomials. Complete orthogonal systems. 4. Fourier series - expansion of functions into F	ourier series, trigo	nometric Fourier				
series and their convergence. 5. Differential calculus of functions of several variables - limit, continuity, partial and directional derivative, gradient, tot	al derivatives and	tangent plane,				
Taylor series, elementary terms of vector analysis, Jacobi matrix. 6. Functions defined implicitly by one or several equations.						
01ANB4 Calculus B 4	Z,ZK	6				
[1] Diferenciální po et funkcí více prom nných a funkcionálních vektor . [2] Funkce zadané implicitn . [3] Taylorovy ady funkce více prom nných. [4]	<ol> <li>Regulární zobra</li> </ol>	zení, zám na				
prom nných, nekartézské soustavy sou adnic. [5] Lokálni, vázané a globálni extrémy funkce více prom nných. [6] Základy teorie míry a obrys kons	trukce Lebesgueo	vy míry. [7]				
Integrální po et funkce vice prom nných - Riemann v a Lebesgue v integrál, základní vlastnosti, Fubiniova v ta, v ta o substituci. Leviho a Lebesgue	gueova v ta. Limita	a, spojitost a				
derivace integrálu podle parametru. [8] Integrály po k ivkách a plochách. Integrální v ty.						
12NME1   Numerical Methods 1	Z,ZK	4				
12NME1   Numerical Methods 1 There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology.	Z,ZK Methods for solut	4 ion of tasks very				
12NME1   Numerical Methods 1 There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology, important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated compu-	Z,ZK Methods for soluti utational environme	4 ion of tasks very ent MATLAB is				
12NME1   Numerical Methods 1 There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology. important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated compu- used as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.	Z,ZK Methods for soluti	4 ion of tasks very ent MATLAB is				
12NME1       Numerical Methods 1         There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology, important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computused as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.         14TEM       Engineering Mechanics	Z,ZK Methods for solut utational environm Z,ZK	4 ion of tasks very ent MATLAB is 6				
12NME1       Numerical Methods 1         There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology, important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computes as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.         14TEM       Engineering Mechanics         Abstract: The course represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and strategies.	Z,ZK Methods for soluti utational environm Z,ZK in analysis of real	4 ion of tasks very ent MATLAB is 6 structure parts				
12NME1       Numerical Methods 1         There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology.         important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computes as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.         14TEM       Engineering Mechanics         Abstract: The course represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and stratic (elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.	Z,ZK Methods for solut utational environm Z,ZK in analysis of real	4 ion of tasks very ent MATLAB is 6 structure parts				
12NME1       Numerical Methods 1         There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology, important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computes as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.         14TEM       Engineering Mechanics         Abstract: The course represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and stratic (elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.         02TEF1       Theoretical Physics 1	Z,ZK Methods for solut utational environm Z,ZK in analysis of real Z,ZK	4 ion of tasks very ent MATLAB is 6 structure parts 4				
12NME1       Numerical Methods 1         There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology, important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computes as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.         14TEM       Engineering Mechanics         Abstract: The course represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and stratic (elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.         02TEF1       Theoretical Physics 1         The course is an introduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalis	Z,ZK Methods for soluti utational environme Z,ZK in analysis of real Z,ZK sms as well as dife	4 ion of tasks very ent MATLAB is 6 structure parts 4 rent approaches				
12NME1       Numerical Methods 1         There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology, important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computes as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.         14TEM       Engineering Mechanics         Abstract: The course represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and stratic (elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.         02TEF1       Theoretical Physics 1         The course is an introduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalis to description of dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on element	Z,ZK Methods for soluti utational environme Z,ZK in analysis of real Z,ZK sms as well as dife ary examples like	4 ion of tasks very ent MATLAB is 6 structure parts 4 rent approaches the two-body				
12NME1       Numerical Methods 1         There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology, important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computes as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.         14TEM       Engineering Mechanics         Abstract: The course represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and stratic (elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.         02TEF1       Theoretical Physics 1         The course is an introduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalis to description of dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on element problem, the motion of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principle	Z,ZK Methods for soluti utational environme Z,ZK in analysis of real Z,ZK sms as well as dife ary examples like es of mechanics.	4 ion of tasks very ent MATLAB is 6 structure parts 4 rent approaches the two-body Fhe subject is				
12NME1       Numerical Methods 1         There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology, important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computes as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.         14TEM       Engineering Mechanics         Abstract: The course represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and stratic (elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.         02TEF1       Theoretical Physics 1         The course is an introduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalis to description of dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on element problem, the motion of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principle the first part of the course of classical theoretical physics (02TEF1, 02TEF2).	Z,ZK Methods for soluti utational environme Z,ZK in analysis of real Z,ZK sms as well as dife ary examples like es of mechanics.	4 ion of tasks very ent MATLAB is 6 structure parts 4 rent approaches the two-body Fhe subject is				
12NME1       Numerical Methods 1         There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology, important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computes as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.         14TEM       Engineering Mechanics         Abstract: The course represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and stratic (elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.         02TEF1       Theoretical Physics 1         The course is an introduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalis to description of dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on element problem, the motion of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principle the first part of the course of classical theoretical physics (02TEF1, 02TEF2).         02TSFA       Thermodynamics and Statistical Physics	Z,ZK Methods for soluti utational environme z,ZK in analysis of real Z,ZK sms as well as dife ary examples like es of mechanics. Z,ZK	4 ion of tasks very ent MATLAB is 6 structure parts 4 rent approaches the two-body The subject is 4				
12NME1       Numerical Methods 1         There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology, important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computes as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.         14TEM       Engineering Mechanics         Abstract: The course represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and stratic (elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.         02TEF1       Theoretical Physics 1         The course is an introduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalis to description of dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on element problem, the motion of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principle the first part of the course of classical theoretical physics (02TEF1, 02TEF2).         02TSFA       Thermodynamics and Statistical Physics         Foundation of thermodynamics and statistical physics. Thermodynamic potential, the Joule Thomson effect, conditions of equilibrium, the Braun-Le Ch	Z,ZK Methods for soluti utational environme Z,ZK in analysis of real Z,ZK sms as well as dife ary examples like es of mechanics. Z,ZK atelier principle. St	4 ion of tasks very ent MATLAB is 6 structure parts 4 rent approaches the two-body Fhe subject is 4 atistical entropy.				
12NME1       Numerical Methods 1         There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology, important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computes as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.         14TEM       Engineering Mechanics         Abstract: The course represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and stratic (elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.         02TEF1       Theoretical Physics 1         The course is an introduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalis to description of dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on element problem, the motion of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principle the first part of the course of classical theoretical physics (02TEF1, 02TEF2).         02TSFA       Thermodynamics and Statistical Physics         Foundation of thermodynamics and statistical physics. Thermodynamic potential, the Joule Thomson effect, conditions of equilibrium, the Braun-Le Ch Basics of many body descriptionfrom a statistical physics. Thermodynamic potential, the Joule Thomson effect, conditions of a canonical and grand-canon	Z,ZK Methods for soluti utational environme z,ZK in analysis of real Z,ZK sms as well as dife ary examples like es of mechanics. Z,ZK atelier principle. St ical ensemble, Fe	4 ion of tasks very ent MATLAB is 6 structure parts 4 rent approaches the two-body The subject is 4 atistical entropy. rmi gas, models				
12NME1       Numerical Methods 1         There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology, important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computused as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.         14TEM       Engineering Mechanics         Abstract: The course represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and straticle (elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.         02TEF1       Theoretical Physics 1         The course is an introduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalis to description of dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on element problem, the motion of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principle the first part of the course of classical theoretical physics (02TEF1, 02TEF2).         02TSFA       Thermodynamics and Statistical Physics         Foundation of thermodynamics and statistical point of view (classical and quasiclassical regime within the frame of a canonical and grand-canon of crystals and the black body radiation). The Boltzmann equation is usedto discusses simple transport phenomena.	Z,ZK Methods for solut utational environm Z,ZK in analysis of real Z,ZK sms as well as dife ary examples like es of mechanics. Z,ZK atelier principle. St ical ensemble, Fe	4 ion of tasks very ent MATLAB is 6 structure parts 4 rent approaches the two-body The subject is 4 atistical entropy. rmi gas, models				
12NME1       Numerical Methods 1         There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology, important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated compused as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.         14TEM       Engineering Mechanics         Abstract: The course represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and stratic (elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.         02TEF1       Theoretical Physics 1         The course is an introduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalis to description of dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on element problem, the motion of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principle the first part of the course of classical theoretical physics (02TEF1, 02TEF2).         02TSFA       Thermodynamics and Statistical Physics         Foundation of thermodynamics and statistical physics. Thermodynamic potential, the Joule Thomson effect, conditions of equilibrium, the Braun-Le Ch Basics of many body descriptionfrom a statistical point of view (classical and quasiclassical regime within the frame of a canonical and grand-canon of crystals and the black body radiation). The Boltzmann equation is used to disc	Z,ZK Methods for solut utational environme in analysis of real Z,ZK sms as well as dife ary examples like es of mechanics. Z,ZK atelier principle. St ical ensemble, Fei Z,ZK	4 ion of tasks very ent MATLAB is 6 structure parts 4 rent approaches the two-body The subject is 4 atistical entropy. rmi gas, models 6				
12NME1       Numerical Methods 1         There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology, important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computused as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.         14TEM       Engineering Mechanics         Abstract: The course represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and strat (elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.         02TEF1       Theoretical Physics 1         The course is an introduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalis to description of dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on element problem, the motion of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principle the first part of the course of classical theoretical physics (02TEF1, 02TEF2).         02TSFA       Thermodynamics and Statistical Physics         Foundation of thermodynamics and statistical physics. Thermodynamic potential, the Joule Thomson effect, conditions of equilibrium, the Braun-Le Ch Basics of many body descriptionfrom a statistical point of view (classical and quasiclassical regime within the frame of a canonical and grand-canon of crystals and the black body radiation). The Boltzmann equation is usedto discu	Z,ZK Methods for solution intational environmediational environmediation Z,ZK in analysis of real Z,ZK ary examples like es of mechanics. Z,ZK atelier principle. Stical ensemble, Fei Z,ZK atelion, interference	4 ion of tasks very ent MATLAB is 6 structure parts 4 rent approaches the two-body The subject is 4 atistical entropy. rmi gas, models 6 re, diffraction, e handie sere				
12IME1       Numerical Methods 1         There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology, important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computused as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.         14TEM       Engineering Mechanics         Abstract: The course represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and strat (elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.         02TEF1       Theoretical Physics 1         The course is an introduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalis to description of dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on element problem, the motion of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principle the first part of the course of classical theoretical physics (02TEF1, 02TEF2).         02TSFA       Thermodynamics and Statistical Physics         Foundation of thermodynamics and statistical physics. Thermodynamic potential, the Joule Thomson effect, conditions of equilibrium, the Braun-Le Ch Basics of many body descriptionfrom a statistical physics.         Poundation of thermodynamics and Atomic Physics         Wave phenomena in mechanics and electromagnetism: modes	Z,ZK Methods for solution intational environmediational environmediation in analysis of real Z,ZK interse as well as diferring ary examples like es of mechanics. Z,ZK atelier principle. Strical ensemble, Ferring Z,ZK atelier principle. Strical ensemble, Ferring Z,ZK ical ensemble, Ferring Z,ZK ization, interference roglie waves, the S	4 ion of tasks very ent MATLAB is 6 structure parts 4 rent approaches the two-body The subject is 4 atistical entropy. rmi gas, models 6 re, diffraction, chrodinger				
12NME1       Numerical Methods 1         There are explained the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology, important for physicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computused as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.         14TEM       Engineering Mechanics         Abstract: The course represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and stratic (elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.         02TEF1       Theoretical Physics 1         The course is an introduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalis to description of dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on element problem, the motion of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principl the first part of the course of classical theoretical physics (02TEF1, 02TEF2).         02TSFA       Thermodynamics and Statistical Physics         Foundation of thermodynamics and statistical physics. Thermodynamic potential, the Joule Thomson effect, conditions of equilibrium, the Braun-Le Ch Basics of many body descriptionfrom a statistical physics.         Basics of many body descriptionfrom a statistical point of view (classical and quasiclassical regime within the frame of a canonical and	Z,ZK Methods for solut utational environme Z,ZK in analysis of real Z,ZK sms as well as dife ary examples like es of mechanics. Z,ZK atelier principle. St ical ensemble, Fei Z,ZK ization, interference roglie waves,the S	4 ion of tasks very ent MATLAB is 6 structure parts 4 rent approaches the two-body The subject is 4 atistical entropy. rmi gas, models 6 re, diffraction, chrodinger				

### Code of the group: BSPFIFIM3 Name of the group: BS P\_FIB FIM 3rd year Requirement credits in the group: Requirement courses in the group: In this group you have to complete at least 12 courses Credits in the group: 0 Note on the group:

Zkoušku z předmětu 01RMAF lze skládat až po složení všech zkoušek z Matematické analýzy a Lineární algebry.

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
14BPFI1	Bachelor Thesis 1 Ji í Kunz, Ladislav Kalvoda Ladislav Kalvoda (Gar.)	Z	5	5C		PS
14BPFI2	Bachelor Thesis 2 Ji í Kunz, Ladislav Kalvoda Ladislav Kalvoda Ji í Kunz (Gar.)	Z	10	10C		PS
14EM1	Elasticity 1 Aleš Materna, Vladislav Oliva Vladislav Oliva (Gar.)	Z,ZK	5	2P+2C		PS
14FKO	Metal Physics Miroslav Karlík, Jaroslav ech Miroslav Karlík Miroslav Karlík (Gar.)	Z,ZK	6	4P+2C		PS
02KF	Quantum Physics Filip Petrásek Petr Jizba Petr Jizba (Gar.)	Z,ZK	3	2P+1C	Z	PS
01NME2	Numerical Methods 2 Michal Beneš Michal Beneš (Gar.)	KZ	2	2+0	L	PS
14PMKOP	Practicum of finite elements methods Aleš Materna Aleš Materna (Gar.)	ZK	3	0P+2C		PS
01PRST	Probability and Statistics Tomáš Hobza Tomáš Hobza (Gar.)	Z,ZK	4	3+1	Z	PS

01RMAF	Equations of Mathematical Physics Václav Klika Václav Klika Václav Klika (Gar.)	Z,ZK	7	4P+2C		PS
11BSEM	Bachelor Seminar Ladislav Kalvoda, Radka Mika Havlíková Ladislav Kalvoda Ladislav Kalvoda (Gar.)	Z	1	0P+2C	L	PS
11ZFPL	Basic to Solid State Physics <i>Eva Mihóková</i>	KZ	2	26P+0C	Z	PS
11ZFP	Basic to Solid State Physics Ladislav Kalvoda, Eva Mihóková Ladislav Kalvoda (Gar.)	ZK	3		Z	PS
14ZZKOS	<b>Testing and processing of metals and alloys</b> Radek Mušálek, Hynek Lauschmann <b>Hynek Lauschmann</b> Hynek Lauschmann (Gar.)	Z,ZK	4	2P+2C		PS
Characteristics of the	courses of this group of Study Plan: Code=BSPFIFIM3 Name=	BS P_FIB FI	M 3rd ye	ear		
14BPFI1 Bac	chelor Thesis 1				Z	5
					7	10
14BPFI2   Bac	chelor Thesis 2				Ζ	10
Student under guidance of hi	is/ner supervisor has been working on the given particular topic for one year.					
14EM1  Ela	isticity 1			Z	2,ZK	5
Abstract: The course represe	ents an introduction for several another lectures on continuum mechanics and the strer	ngth of materials.	The first pa	rt contains a	detailed th	eory of stress,
small strains and linear elast	icity. The second one represents a logical descent from the continuum mechanics to the	ne practical engin	eering solu	tion of simple	e problems	on tension,
bending, shearing and torsio	n in the cross section of bars and beams.					
	tal Physics			7	' 7K	6
Abstract: The physical backer	round of procession appointered in production and therma machanical treatment of m	stallia matariala ia	deperihed			orvetal defecta
Abstract. The physical backy			uescribeu	including so	nuncation,	ci ystai delects,
theory of solid solutions, theo	bry of dislocations, diffusion, nardening and softening of metals and alloys.					
02KF Qu	antum Physics			Z	2,ZK	3
State description, wave funct	tion, postulates of quantum mechanics, Born s statistical interpretation, expectation va	alues, Schrödinge	er equation,	Heisenberg	uncertainty	principle,
quantization of angular mom	entum, solution of simple systems, hydrogen atom.					
01NME2 Nu	merical Methods 2				KZ	2
The course is devoted to num	perical solution of boundary-value problems and initial-boundary-value problems for ordin	harv and nartial di	ifferential er	l nuations It ex	nlains meth	nods converting
houndary value problems to	initial value problems and finite difference methods for elliptic, parabelic and first orde	r hyporbolic partie	al difforanti	additions. It c	(piùilio filoti	ious converting
boundary-value problems to	initial-value problems and initie-difference methods for emptic, parabolic and inst-orde				71/	
14PMKOP   Pra	acticum of finite elements methods				ZK	3
Use of commercial finite elen	nent code for solving practical problems in mechanics.					
01PRST Pro	bability and Statistics			Z	,ZK	4
It is a basic course of probab	ility theory and mathematical statistics. The probability theory is build gradually beginr	ning with the class	sical definiti	on and conti	nuing till the	e Kolmogorov
definition. The notions as ran	dom variable, distribution function of random variable and characteristics of random variable	ariable are treated	d and basic	limit theorer	ns are state	ed and proved.
On the basis of this theory th	he basic methods of mathematical statistics such as estimation of distribution parameter	ers and hypothesi	is testing a	e explained.		·
	uations of Mathematical Physics	,	3	7	77	7
			41		., <b>∠</b> r\	/
The subject of this course is	solving integral equations, theory of generalized functions, classification of partial diffe	erential equations	, theory of I	ntegral trans	formations,	and solution of
partial differential equations	(boundary value problem for eliptic PDE, mixed boundary problem for eliptic PDE).					
11BSEM Ba	chelor Seminar				Z	1
In the first part of the seminal	r, students familiarize themselves with the general principles of publishing and presenti	ing scientific work	and the for	mal requirer	nents for ba	chelors degree
projects at the faculty. The se	econd part is designed as a practical training for the defence of the bachelors degree p	project. The stude	nts give ora	l presentatio	ons of the cu	urrent state of
the research results achieved	during the work on their projects. Each presentation is followed by a discussion on scie	ntific matters as w	vell as on th	e possibilitie	s of improvi	na the students
performance.				•		0
117EDI Ro	sic to Solid State Dhysics				<b>K</b> 7	2
	SIG IC SUM State FillySIGS	tion Donad on the	o introduce -	 d bonding int		
Description of fundamental p	oroperties of solids following the regular long distance ordering of atoms in a crystal lat	lice. based on the			eraction be	tween atoms in
solids, various types of crysta	ais and their properties are defined. The model of crystalline lattice dynamics in harmonic	c approximation is	s described	and basic the	ermai prope	rties of crystals
are derived. The periodic pot	ential of the crystal lattice is introduced and its relation to the following model describin	ng the energetic s	state of elec	ctrons in solid	ds by mean	s of electron
energy bands explained. The	e special consequences of band approach to the physical properties of solids are eluci	dated. The aim of	the course	is to system	atically intro	oduce and
interpret a broad phenomeno	plogical basis of physical properties of crystalline solids					
11ZFP Bas	sic to Solid State Physics				ZK	3
Description of fundamental p	roperties of solids following the regular long distance ordering of atoms in a crystal lat	tice. Based on the	e introduce	d bonding int	eraction be	tween atoms in
solids, various types of crysta	als and their properties are defined. The model of crystalline lattice dynamics in harmonic	c approximation is	described	and basic the	ermal prope	rties of crystals
are derived. The periodic pot	ential of the crystal lattice is introduced and its relation to the following model describing	na the energetic	state of elec	trons in solid	ds by mean	s of electron
energy bands explained The	special consequences of band approach to the physical properties of solids are elucit	dated The aim of	the course	is to system	atically intr	oduce and
interpret a broad phenomenoporial basis of physical properties of crystalline solids						
	sung and processing or metals and alloys				.,∠n	4
Tension tests, hardness, imp	act toughness, technological testing, fatigue testing, creep testing. Light microscopy, p	reparation of spe	cimens for i	macro- and n	nicro-obser	vation. Casting,
forming, welding, soldering, b	prazing, powder metallurgy, mechanical machining. Copper alloys, aluminium alloys, tita	anium alloys, spe	cial alloys c	f non-ferrous	s metals. Te	chnical drawing
and CAD.						
Nome of the blee	k: Compulsory alactive acurace					
iname of the block	k. Compulsory elective courses					

Minimal number of credits of the block: 6

The role of the block: PV

Code of the group: BSPFIFIMPV2 Name of the group: BS P\_FIB FIM Required optional courses 2nd year Requirement credits in the group: In this group you have to gain at least 6 credits Requirement courses in the group:

#### Credits in the group: 6 Note on the group:

#### Studenti si povinně zapisují předměty alespoň za 6 kreditů.

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
14CHMA	Materials Characterization Petr Haušild, Karel Tesa Karel Tesa Petr Haušild (Gar.)	KZ	4	2P+1C		PV
02PRA1	Experimental Laboratory 1 Libor Škoda, Jaroslav Biel ík Jaroslav Biel ík (Gar.)	KZ	6	0+4	Z	PV
02PRA2	Experimental Laboratory 2 Libor Škoda, Jaroslav Biel ík Jaroslav Biel ík (Gar.)	KZ	6	0+4	L	PV
14PMA	Practicum in Materials Miroslav Karlík, Karel Tesa Miroslav Karlík Miroslav Karlík (Gar.)	KZ	3	0P+2L		PV

# Characteristics of the courses of this group of Study Plan: Code=BSPFIFIMPV2 Name=BS P\_FIB FIM Required optional courses 2nd year

year							
14CHMA	Materials Characterization	KZ	4				
Abstract: The subject is composed of lectures, exercises and discussion regarding the basic methods of characterization. The aim of the subject is to introduce students to the most							
common methods of ma	aterials characterization, their outputs and the interpretation of the obtained data. An emphasis is placed on the individual wo	rk of the students	3 with current				
scientific articles in the	field of materials characterization. A part of the subject is an excursion to the laboratories of the department and its collabora	iting institutions. A	After passing this				
subject, the student sho	buld be able to choose the adequate characterization method for a particular material and evaluate the obtained results.						
02PRA1	Experimental Laboratory 1	KZ	6				
Lecture is intended esp	ecially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclea	r Engineering). Βι	ut it can be also				
attended by students int	erested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work wit	h theliterature), the	e implementation				
of the measurement (ad	equire of different experimental procedures and routines), willteach writing the records of measurement, processing and evalu	uation of results.	At the same time				
practically extendthe kn	owledge gained in lectures on physics.						
02PRA2	Experimental Laboratory 2	KZ	6				
Lecture is intended esp	ecially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear	r Engineering). Βι	ut it can be also				
attended by students int	erested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work wit	h theliterature), the	e implementation				
of the measurement (ad	equire of different experimental procedures and routines), willteach writing the records of measurement, processing and evalu	uation of results. A	At the same time				
practically extendthe kn	owledge gained in lectures on physics.						
14PMA	Practicum in Materials	KZ	3				
Abstract: The aim of this	s subject is to introduce students to the basics of scientific work in the form of measurements, data analysis and writing of rej	ports. Simple case	e studies of				
materials science are designed to show students the right way of presenting the outputs of their work. The subject is focused on correct data analysis and logical structure of the reports.							
After completing the su	After completing the subject, the student should be able to individually design, execute and evaluate experiments.						

## 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.

U 1						
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 Jakub Hají ek (Gar.)	Z	1	0+2	L	PV
00RET	Rhetoric Jana Ková ová Jana Ková ová Beatriz Vadillo Gonzalo (Gar.)	Z	1	0+2		PV
00UPRA	Introduction to Law Martin ech Jana Ková ová Martin ech (Gar.)	Z	1	0+2		PV
00UPSY	Introduction to Psychology Jakub Hají ek <b>Jana Ková ová</b> Jakub Hají ek (Gar.)	Z	1	0+2		PV

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

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

#### Code of the group: BSPJAZYKYZK

### Name of the group: BS P languages

Requirement credits in the group:

Requirement courses in the group: In this group you have to complete at least 2 courses Credits in the group: 0

#### Note on the group:

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

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

04XAMZK	English for Intermediate Students Examination	ZK	4			
The course content is th	e examination as given by the study plan. The examination covers the AM1, AM2, and AM3 courses and consists of two par	ts - written (100 m	nin) and oral			
(20-30 min). The studen	t is expected to master the AM syllabus and demonstrate the ability to apply their knowledge gained in the three English cou	rses.				
04XAPZK	English for Advanced Students Examination	ZK	4			
The course content is th	e examination as given by the study plan. The student is supposed to demonstrate mastering the AP3 syllabus and the ability	to apply their know	wledge obtained			
in the three AP courses	. The examination consists of 2 parts - written (100 min) and oral (30 min) and includes also oral presentation of a topic from	the student's field	d of study.			
04XCESZZK	Czech for Foreigners Beginners - Examination	ZK	4			
The course content is th	he examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the $0^2$	XCESZ1,2,3 cou	rses and can			
only be taken after succ	essful completion of all three courses. Detailed information is to be obtained from the teacher.					
04XCESMZK	Czech for Intermediate Students Examination	ZK	4			
The course content is th	e examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the C	ESM1,2,3 course	s and can only			
be taken after successfe	ul completion of the 3 courses. Detailed information is to be obtained from the teacher.					
04XCESPZK	Czech for Foreign Students - Advanced Examination	ZK	4			
The course content is th	e examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the C	ESP1,2,3 courses	s and can only			
be taken after successfe	ul completion of the 3 courses. Detailed information is to be obtained from the teacher.					
04XFMZK	French for Intermediate Students Examination	ZK	4			
The content is the exam	, ination as given by the study programme. The whole French programme is ended with an examination covering the contents	of FM1-FM3. The	examination			
consists of a written and	d oral part and is organized according to Examination Instructions, a document available on the web.					
04XFPZK	French for Advanced Students Examination	ZK	4			
The whole French prog	am is ended with an examination covering the contents of FP1-FP3. The examination consists of a written and/or an oral par	t and is organized	d according to			
Examination Instructions, a document available on the web. Assessment of the presentation is included into the examination grading.						
04XFZZK	French for Beginners Examination	ZK	3			
The content is the 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.						

04XNMZK	German for Intermediate Students Examination	ZK	4			
The course content is th	e examination as given by the study plan. The whole German for Intermediate Students Course is completed by an examinati	on consisting of tw	vo parts - written			
and oral, which cover th	e courses NM1 - NM3. The oral part follows after passing the written part successfully and after obtaining the 04NM3 assess	sment. More detai	led information			
is to be obtained from th	ne teacher.					
04XNPZK	German for Advanced Students Examination	ZK	4			
The course content is th	e examination as given by the study plan. The whole German for Advanced Students Course is completed by an examinatio	n consisting of tw	o parts - written			
and oral, which cover th	e courses NP1 - NP3. The oral part follows after passing the written part successfully and after obtaining the 04NP3 ungrade	ed assessment. M	lore detailed			
information is to be obta	ined from the teacher.					
04XRMZK	Russian for Intermediate Students Examination	ZK	4			
The course content is th	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	acquired in RM1			
- RM3. Students are elig	yible for the oral examination only after a prior pass in RM3 and a successful written examination. Students are given instruct	tions by the teach	er.			
04XRPZK	Russian for Advanced Students Examination	ZK	4			
The course content is th	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	acquired in RP1			
- RP3. Students are elig	ible for the oral examination only after a prior pass in RP3 and a successful written examination. Students are given instructi	ons by the teache	⊧r.			
04XRZZK	Russian for Beginners Examination	ZK	3			
The course content is th	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	acquired in RZ1			
- RZ5. Students are elig	ible for the oral examination only after a prior pass in RZ5 and a successful written examination. Students are given instruction	ons by the teache	r.			
04XSMZK	Spanish for Intermediate Students Examination	ZK	4			
The course content is th	e examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the w	ritten part, studer	its will have			
obtained non-graded as	sessment for course XSM3. Oral examination follows the written part.					
04XSPZK	Spanish for Advanced Students Examination	ZK	4			
The course content is th	e examination as given by the study plan. Examination XSPZK consists of two parts, namely oral and written. The prerequis	ite for admission f	o oral part is			
having passed the written test. Examination content is based on syllabi of courses XSP1, XSP2, and XSP3 or on an individual study plan of the student.						
04XSZZK	Spanish for Beginners Examination	ZK	3			
The course content is th	he course content is the examination as given by the study plan. Examination consists of two parts - written and oral. Student can register for oral examination only if he/she has					
passed the written exan	nination test.					
·						

### Code of the group: BSPFIFIMPV1

#### Name of the group: BS P\_FI FIM Required optional courses 1st year

#### 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:

Studenti si povinně zapisují jeden ze dvou předmětů.

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 Igor Jex (Gar.)	Z	2	2+0	Z	PV
14TED	<b>Creating Electronic Documents</b> Aleš Materna, Ji í Martin ík <b>Aleš Materna</b> Aleš Materna (Gar.)	Z	2	26C		PV

## Characteristics of the courses of this group of Study Plan: Code=BSPFIFIMPV1 Name=BS P\_FI FIM Required optional courses 1st year

	02DEF1	History of Physics 1	Z	2					
	Physics and its place in the system of sciences. The relationship of man and nature. Natural sciences in ancient Orientand Greece, Greek natural philosophers, Aristotle. Physics in								
	Helenistic period, Archimed. Arabic science, European science in Middle Ages. Renaissance - da Vinci, Giordano Bruno. Copernicus, Kepler, Galileo, Huygens. The birth of physics								
	as experimental science	2. Newton and his work.							
	14TED	Creating Electronic Documents	Z	2					
	Basic skills for creating and presenting student theses. Individual exercises focus on creating and formatting texts, equations, charts, tables, presentations and entire documents in an								
I	office suite.								

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

Code of the group: BSPFIFIMV Name of the group: BS P\_FIB FIM Optional courses Requirement credits in the group: Requirement courses in the group: Credits in the group: 0 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, <b>authors</b> and guarantors (gar.)	Completion	Credits	Scope	Semester	Role	
11APLG	Applications of Group Theory in Solid State Physics Zden k Pot ek Zden k Pot ek Zden k Pot ek (Gar.)	ZK	2	2	Z	V	
02DEF2	History of Physics 2 Igor Jex Igor Jex (Gar.)	Z	2	2+0	L	V	
11ELEA	Instrumentation and Measurement Pavel Jiroušek Pavel Jiroušek (Gar.)	Z,ZK	2	2	L	V	
02EXF	Experimental Physics Jaroslav Adam, Barbara Antonina Trzeciak, Jaroslava Óbertová, Katarína K ížková Gajdošová Jaroslava Óbertová Katarína K ížková Gajdošová (Gar.)	ZK	2	2P+0C	Z	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	
12NT	Nanotechnology Eduard Hulicius, Jan Proška <b>Jan Proška</b> Eduard Hulicius (Gar.)	ZK	2	2+0	Z	V	
15CH1	General Chemistry 1 Ond ej Holas, Petr Distler, Václav uba Petr Distler Petr Distler (Gar.)	Z	3	2+1	Z	V	
15CH2	General Chemistry 2 Ond ei Holas, Petr Distler, Václav uba Petr Distler Petr Distler (Gar.)	Z,ZK	3	2+1	L	V	
12PAS	Computer Algebra Systems	Z	2	1P+1C	Z	V	
18PMTL	Programming in MATLAB Mat j Pokorný, Quang Van Tran, Jaromír Kukal Quang Van Tran Jaromír Kukal (Gar.)	KZ	4	4C	z	v	
11SFIPL	Seminar on Solid State Physics Ladislav Kalvoda Ladislav Kalvoda (Gar.)	KZ	2	1+1		V	
02SMF	Seminar of Mathematical Physics Ladislav Hlavatý (Gar.)	Z	2	0+2	Z	V	
11SPLA	Structure of Solid State Petr Kolenko, Ivo Kraus Petr Kolenko (Gar.)	Z,ZK	4	2P+2C	L	V	
TV-1	Physical Education	Z	1		Z	V	
TV-2	Physical Education	Z	1		L	V	
TV-3	Physical education	Z	1	0+2	Z	V	
TV-4	Physical education	Z	1	0+2	L	V	
02TEF2	Theoretical Physics 2 Petr Novotný, Filip Petrásek Josef Schmidt Petr Novotný (Gar.)	Z,ZK	4	2+2	L	V	
01UP1	Introduction to Probability 1 Jan Vybíral Jan Vybíral Jan Vybíral (Gar.)	Z,ZK	3	1P+1C		V	
01UP2	Introduction to Probability 2 Milan Krbálek, Michaela Krbálková Michaela Krbálková Milan Krbálek (Gar.)	Z,ZK	3	1P+1C		V	
12UNXAP	Introduction to UNIX Milan Kucha ík Milan Kucha ík (Gar.)	Z	2	1P+1C	L	V	
12UVP	Introduction to Scientific Computing Milan Ši or Milan Ši or Milan Ši or (Gar.)	Z	2	1P+1C	L	V	
12ZEL1	Basic Electronics 1 Jaroslav Pavel Jaroslav Pavel Jaroslav Pavel (Gar.)	Z,ZK	3	2+1	Z	V	
12ZEL2	Basic Electronics 2 Jaroslav Pavel Jaroslav Pavel Jaroslav Pavel (Gar.)	Z,ZK	3	2+1	L	V	
02ZM1	Foundations of Physical Measurements 1 Solangel Rojas Torres, Petr Chaloupka Petr Chaloupka (Gar.)	ZK	2	2P+0C	Z	V	
02ZM2	Foundations of Physical Measurements 2 Petr Chaloupka Petr Chaloupka (Gar.)	KZ	4	0P+4L	L	V	
12ZAOP	Fundamentals of Optics Ivan Richter, Pavel Kwiecien Ivan Richter Ivan Richter (Gar.)	Z,ZK	2	2+0	Z	V	
Characteristics of the	Characteristics of the courses of this group of Study Plan: Code=BSPFIFIMV Name=BS P_FIB FIM Optional courses						
11APLG       Applications of Group Theory in Solid State Physics       ZK       2         Consideration of atomic system symmetry allows, without any quantitative calculations, rigorously and precisely determine how many energy states there are and what interactions and transitions between them may occur. Therefore, the main purpose of this course is to describe the methods by which we can extract the information on the object that symmetry alone will provide. The application of these methods is illustrated by an example of molecular orbitals, inner orbitals of ions in the crystal field environment, normal modes of molecular vibrations, and selection rules for optical absorption transitions.							

02DEF2	Z	2				
Development of classical mechanics after Newton, Bernoulli's, Euler, Lagrange. Historical development of optics, corpuscular and wave approach. Electricity and magnetism -						
electrostatics, galvanism, electrodynamics and electromagnetism, Faraday and Maxwell. Thermodynamics and its laws, statistical physics, Boltzmann. The birth of modern quantum						
and relativistic physics, Planck and Einstein. Discovery of radioaktivity, structure of atom, atomic nucleus, Rutherford and Bohr. The way to nuclear energy, Elementary particles,						
standard model. The concept of Nature and Universe of today.						
11ELEA	Instrumentation and Measurement	Z,ZK	2			

 11ELEA
 Instrumentation and Measurement

 The course is the introduction to the instrumentation and measurement for physicists.

02EXF	Experimental Physics	ZK	2
The goal of this subject	is to introduce the students the principles of physics measurements, their techniques, methods and instruments that are used	d for such measur	ements, and the
analysis of measured d	ata.		
04AKS	English Conversation	Z	1
The course will develop	the student's communication skills acquired throughout their previous studies. It aims to improve all aspects of oral commun	ication. The stude	ent will develop
their vocabulary for vari	ous communication situations and will master their communication strategy. They will also practise their listening skills in orde	er to better follow :	and participate
	Encounting to current English usage, and become a more contident speak		4
UUIVIAIVI I Students are introduced	ESSENTIAIS OF HIGH SCHOOL COURSE 1		1
	Escentials of High School Math Course 2	7	1
Review of basics of high	school mathematics.		I
12NT	Nanotechnology	7K	2
Lectures will introduce s	students mainly to modern technological methods of preparation of semiconductor, metal and dielectric nanostructures. Phys	ical and chemical	fundaments of
different technologies (N	/IBE, MOVPE, EBL, sol-gel and colloidal solution) will be explained. Substantive attention will be devoted to epitaxial technology	ogies which are s	ubstantial for
nanostructure preparati	on. Particular emphasis will be focused on detail characterization of "in situ" and "ex situ" techniques, their applications for he	eterostructure and	nanostructure
growths will be discusse	ed as well. Some supportive technical methods - lithography, diffusion, evaporation, ion implantation, contact and dielectric la	yer preparation wi	ill be mentioned
as well as soldering and			2
15CH1	General Chemistry 1	Z	3 tod by oxemplos
solved in exercises	cepts, quantities and units used in chemistry are introduced in the course General Chemistry I. Their significance and practic	ai use are illustra	led by examples
15CH2	General Chemistry 2	7 7K	3
The subject is the conti	uation of the course General chemistry I. The main attention is paid to general principles governing chemical processes. Usi	ing various examr	les the fact that
the validity of these prin	ciples is not restricted only to chemical processes is documented. The significance and practical use of explained principles	are illustrated by (	examples solved
in exercises.			
12PAS	Computer Algebra Systems	Z	2
Practically oriented intro	duction to computer algebra systems (CAS): their main characteristics, ways and means of using them. Constituent part is re-	ealized in comput	er classrooms:
students acquire basic	skills with CAS by solving relatively simple and basic tasks from mathematics and physics.		
18PMTL	Programming in MATLAB	KZ	4
Introducing Matlab envi	ronment as efficient tool for computation in complex arrays and symbolic variables, namely for linear algebra, mathematic and testion of results.	alysis, statistics, a	algorithmization
	Cominer en Calid State Dhusias	<b>V7</b>	2
1 INTRODUCTION OF the Se	Seminal On Sono State Physics a module "bravais" - crystal structure and X-ray diffraction in 2D 2 theory 3 Simulations	of diffractive oben	∠ omena related
to following themes: crv	stal lattice versus crystal structure, primitive cell, elementary cell, lattice plane, reciprocal grid. Laue and Bragg condition, atc	omic scattering fac	ctor. structural
factor, extinction, practic	al structural analysis 4.Module "laue" - Diffraction on perfect and imperfect crystals 5.Simulations: influence of structural disorder	r on diffraction pat	tern, atomization
and thermal oscillations	, quasi crystals 6."born" module - dynamics of crystalline grid in 1D ? theory 7.Simulations: planar waves, traveling and stand	ding waves, norma	al modes,
polarization, energy and	momentum transport, infinite chain, chain of finite lenght, boundary conditions, wave packets, group and phase velocity, disper-	sion, pulses and the	neir propagation,
localized modes, anhar	nonicity 8."debye" module - lattice dynamics and thermal capacity ? theory 9.Simulations: Brillouine zone, dispersion relation,	, density of states,	thermal energy,
heat capacity 10."drude	" module - dynamics of classical electron gas in 2D ? theory 11.Simulations: diffuse electron movement, electron drift in an e	electric fie	eld, Haynes and
seminar work	ection mobility, electron motion in magnetic field, cyclotron nequency, nair experiment, magnetorezistence 12.Assignment, e	aboration and pre	esentation of the
02SMF	Seminar of Mathematical Physics	Z	2
The purpose of the sem	inar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physics depart	tment will present	simple tasks
concerning their scientif	ic activities that could become the topics of the student?s bachelor theses in the next year		
11SPLA	Structure of Solid State	Z,ZK	4
Crystallography has an	important role in the modern sciences because of its interdisciplinary nature. The aim of this lecture is to lay the basis of stud	ly of solid state ph	iysics.
TV-1	Physical Education	Z	1
TV-2	Physical Education	Z	1
TV-3	Physical education	Z	1
TV-4	Physical education	Z	1
02TEF2	Theoretical Physics 2	Z,ZK	4
Tensors and transforma	tions in physics. Mechanics of point mass, rigid body and continuum. The special theory of relativity: relativistic mechanics ar	nd classical field th	heory in the
Minkowski space-time.	Diassical electrodynamics: Maxwell's equations in the Minkowski space-time, electromagnetic waves in dielectric media, elect	tromagnetic radia	tion in the dipole
	Introduction to Probability 1	7 7K	2
1 Random trial with finit	e set of possible results, classical probability, independent random events 2 Probability and combinatorics 3 Probability and c	∣ ∠,∠r∖ ∣ geometry Bertran	ds paradox
4.Conditional probability	/ Bayes theorem, medical diagnosis, Simpsons paradox 5. Random variable with discrete state space, its distribution and me	an value 6.Proble	ms involving the
calculation of mean valu	ie 7.Probabilistic method in graph theory 8.Random algorithms, Morris algorithm and its variants		0
01UP2	Introduction to Probability 2	Z,ZK	3
1. One-dimensional con	tinuous random variable and its statistical description. 2. Distribution function and probability density. 3. Axiomatic introduction	n of probability an	d connection to
measure theory. 4. Num	erical characteristics of continuous random variables. 5. Selected variants of continuous distributions and their characteristics	s. 6. Elementary m	nethods for point
estimations. 7. Generati	ng pseudorandom numbers from the selected distribution.		2
Computer and exerction	INTRODUCTION TO UNIX		Z
Principles of operating	g systems, reasonal computer, workstation and supercomputers. Processor, memory, bus, devices, nard disk, network interna systems, Operating system UNIX, Basic principles, kernel, kernel services, Documentation, File system, file atributes, working	a with files Text er	ditors: vi emace
Command interpreter (s	shell) bash and its programming (scripts). Controlling processes, process status, computer load a process priorities. Standard	tools. Graphical	user interface
X-windows. Computer n	etworks. Local computer networks. Global computer networks. Addresses and protocols TCP/IP. Network configuration of a c	computer. Network	services:
hardware sharing, mail,	scp, etc. Network applications		
12UVP	Introduction to Scientific Computing	Z	2
Practically oriented Intro	oduction to scientific computing. Constituent part of the course is realized in computer classroom. Students get acquinted with	n some basic tools	s fort scientific
and technicval computir	ng, data analysis, data visualisation and algorithm development.		

12ZEL1	Basic Electronics 1	Z,ZK	3			
The subject provides p	imary knowledge of circuit theory concerning principles of electronic circuits in both stationary and harmonic stable state. Cin	cuit analysis meth	nods for linear			
circuits include symboli	c and complex method are explained. Proper circuit analysis is also lectured. The subject's final part deals with transient effe	cts inside linear ci	rcuits.			
12ZEL2	Basic Electronics 2	Z,ZK	3			
The subject follows up	with the Basic Electronics 1. Semiconductor elements basic properties are explained. Thecourse's final part deals with basic	themes of logical	circuits field.			
02ZM1	Foundations of Physical Measurements 1	ZK	2			
The lecture is designed	for students of physical specializations (Experimental particle physics, Physical engineering, Nuclear engineering), however	it can be attende	d by students of			
other branches. The go	al of the lecture is to introduce the basics of physical measurements, the methods of processing and evaluation of acquired c	lata on a PC. Stud	lents learn the			
basic habits of work in	a physics lab.					
02ZM2	Foundations of Physical Measurements 2	KZ	4			
The lecture is designed	for students of physical specializations (Experimental particle physics, Physical engineering, Nuclear engineering), however	, it can be attende	d by students of			
other branches. The go	al of the lecture is to introduce the basics of physical measurements, the methods of processing and evaluation of acquired of	lata on a PC. Stud	lents learn the			
basic habits of work in	a physics lab.					
12ZAOP	Fundamentals of Optics	Z,ZK	2			
The lecture covers the	very basics of optics - electromagnetic theory, linear optical physics and material effects, basics of nonlinear effects, and geo	metrical optics. Th	he main goal of			
the lecture is to obtain,	on the bachelor level, broad and general information on optics, giving an essential orientation in the field, especially with resp	pect to character	of the bachelor			
work. Particular topics a	are further elaborated during departmental masters program. The lecture stems from the electrodynamic notion of plane wave	s in vacuum (inclu	ding polarization			
effects), and further from material medium. It explains basics of linear and nonlinear response in material medium and dispersion properties. It next informs on consequences in						
anisotropic media, it explains processes induced by boundary conditions at interfaces. It also discusses the consequences of statistics on interference processes, explains elements						
of two-wave interference and their applications in interferometers. Based on the Fresnel diffraction integral, diffraction processes are presented in a graphical form, including fundamentals						
of grating diffraction. Based on this diffraction principle, basic functioning of holography is clarified. Finally, the lecture unravels the geometrical optics limit. It takes notice on geometrical						
approach imaging, sub	stitutive schema of a paraxial imaging system, and optical aberrations. It shows fundamentals of imaging in optical instrumen	ts.				

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

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
04XAM1	English for Intermediate Students M1 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	Z	V
04XAM2	English for Intermediate Students M2 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	L	V
04XAM3	English for Intermediate Students M3 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	Z	V
04XAP1	English for Advanced Students P1 Jana Ková ová Darren Copeland (Gar.)	Z	2	0+2	Z	V
04XAP2	English for Advanced Students P2 Darren Copeland Darren Copeland (Gar.)	Z	2	0+2	L	V
04XAP3	English for Advanced Students P3 Jana Ková ová Darren Copeland (Gar.)	Z	2	0+2	Z	V
04XCESZ1	Czech for Foreigners - Beginners 1 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	Z	V
04XCESZ2	Czech for Foreigners - Beginners 2 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	L	V
04XCESZ3	Czech for Foreigners - Beginners 3 Jana Ková ová Jana Ková ová (Gar.)	Z	2	2S	Z	V
04XCESM1	Czech for Foreigners - Intermediate 1 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	Z	V
04XCESM2	Czech for Foreigners - Intermediate 2 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	L	V
04XCESM3	Czech for Foreigners - Intermediate 3 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	Z	V
04XCESP1	Czech for Foreign Students - Advanced 1 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	Z	V
04XCESP2	Czech for Foreigners - Advanced 2 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	L	V
04XCESP3	Czech for Foreigners - Advanced 3 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	Z	V
04XFM1	French for Intermediate Students M1 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+2	Z	V
04XFM2	French for Intermediate Students M2 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+2	L	V
04XFM3	French for Intermediate Students M3 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+2	Z	V
04XFP1	French for Advanced Students P1 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+2	Z	V

04XFP2	French for Advanced Students P2 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+2	L	V
04XFP3	French for Advanded Students P3 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+2	Z	V
04XFZ1	French for Beginners Z1 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+4	L	V
04XFZ2	French for Beginners Z2 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+4	Z	V
04XFZ3	French for Beginners Z3 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+4	L	V
04XFZ4	French for Beginners Z4 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+4	Z	V
04XFZ5	French for Beginners Z5 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+4	L	V
04XNM2	German for Intermediate Students M2 Miloslava echová Miloslava echová (Gar.)	Z	2	0+2	L	V
04XNM1	German for Intermediate Students M1 Miloslava echová Miloslava echová (Gar.)	Z	2	0+2	Z	V
04XNM3	German for Intermediate Students M3 Miloslava echová Miloslava echová (Gar.)	Z	2	0+2	Z	V
04XNP1	German for Advanced Students P1 Miloslava echová Miloslava echová (Gar.)	Z	2	0+2	Z	V
04XNP2	German for Advanced Students P2 Miloslava echová Miloslava echová (Gar.)	Z	2	0+2	L	V
04XNP3	German for Advanced Students P3 Miloslava echová Miloslava echová (Gar.)	Z	2	0+2	Z	V
04XRM1	Russian for Intermediate Students M1 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+2	Z	V
04XRM2	Russian for Intermediate Students M2 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+2	L	V
04XRM3	Russian for Intermediate Students M3 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+2	Z	V
04XRP1	Russian for Advanced Students P1 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+2	Z	V
04XRP2	Russian for Advanced Students P2 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+2	L	V
04XRP3	Russian for Advanced Students P3 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+2	Z	V
04XRZ1	Russian for Beginners Z1 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+4	L	V
04XRZ2	Russian for Beginners Z2 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+4	Z	V
04XRZ3	Russian for Beginners Z3 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+4	L	V
04XRZ4	Russian for Beginners Z4 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+4	Z	V
04XRZ5	Russian for Beginners Z5 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+4	L	V
04XSM1	Spanish for Intermediate Students M1 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+2	Z	V
04XSM2	Spanish for Intermediate Students M3 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+2	L	V
04XSM3	Spanish for Intermediate Students M3 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+2	Z	V
04XSP1	Spanish for Advanced Students P1 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+2	Z	V
04XSP2	Spanish for Advanced Students P2 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+2	L	V
04XSP3	Spanish for Advanced Students P3 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+2	Z	V
04XSZ1	Spanish for Beginners Z1 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+4	L	V
04XSZ2	Spanish for Beginners Students Z2 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+4	Z	V
04XSZ3	Spanish for Beginners Z3 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+4	L	V
04XSZ4	Spanish for Beginners Z4 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+4	Z	V
04XSZ5	Spanish for Beginners Z5 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+4	L	V

Characteristics of the courses of this group of Study Plan: Code=BSPJAZYKYZAP Name=BS P jazyky zap

04XAM1 En	nalish for Intermediate Students M1	Z	2
The course is designed for s	students who have successfully completed the full secondary school English language course at least at the A2 level of th	ie Common Euror	ean Framework
of Reference for Languages	s (CEFR). It provides an introduction into English for Specific and Academic Purposes (ESP, EAP), i.e., into fundamentals	s of vocabulary an	d style typical of
professional oral and written	n communication situations. Thus it covers topics related to the student's life and needs as well as topics of subtechnical	interest. Attention	is also paid to
extending the knowledge of	grammar issues used in EAP.		
04XAM2 En	nglish for Intermediate Students M2	Z	2
The AM2 course expects the	e student to have completed the AM1 course. It develops their skills for work with subtechnical texts, focusing also more	on specific gramm	ar, functions,
and lexical items typical of E	SP and EAP (e.g., definition, existence and classification of phenomena, object descriptions). Part of the course is also guid	ded writing. If nece	essary, grammar
revision is included.			
04XAM3 En	nglish for Intermediate Students M3	Z	2
The course develops the skil	ills that enable students to cope with features typical of professional style. Increasing attention is paid to developing subtech	inical vocabulary a	and independent
understanding of profession	hal texts. Great emphasis is placed on distinguishing different levels of formal and informal oral and written communication	n and their approp	oriate Czech
equivalents. The course also	o includes studying abstracts and rules for writing them as well as basic rules for preparing and giving a short presentatio	n on a chosen top	oic related to the
student's field.		r	-
04XAP1  En	nglish for Advanced Students P1	Z	2
The course is designed for s	students who have successfully completed the full secondary school English language course (at least the B1 level of the	Common Europe	ean Framework
of Reference for Languages	s - CEFR). It provides an introduction into English for Specific and Academic Purposes (ESP, EAP), i.e., into the fundame	ntals of vocabular	y, functions,
grammar, and style typical o	of professional oral and written communication situations (fundamentals of terms in mathematics and physics, definitions,	graph description	ns, 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 v revision of selected grammar topics is included.	(writing a CV, lette	er of application,
	, revision of selected grammar topics is included.	7	
	Iglish for Advanced Students P2		
The AP2 course is based or	n AP1, thus extending the student's skills for working with subtechnical texts, and even with professional texts of chosen	branches of scient	ce. According to
of descriptions and if possi	interes on chosen grammar topics, but mainly interiors to develop understanding or syntactic structures and typical meto	rical functions (e.g	ding materials
The course extends the stuc	late, a case study). Increasing emphasis is placed on the undergraduate sindependent work with and reading of impulsi dent's subtechnical vocabulary, and includes fundamental notions of chosen branches of science. It is focused on formal v	writing including th	uing materials.
naragraph structure linking	cohesion and coherence in texts		le sentence and
	adjub for Advanced Studente D2	7	2
	IQIISTITION AUVAILUEU Student to work without any auidance with authentic professional materials and to interpret the text	Lt includes training	C oral and written
communication skills and fu	inclines (e.g., expression an opinion, agreement, and objections; taking part in discussion, note-taking, summarizing, writ	ting an abstract) a	nd if nossible
also preparing a project on a	a given or chosen topic and presenting it. The course places emphasis on distinguishing levels of formal and informal lan	iquade both in ora	I and written
communication.		guugo bour in ora	
	zech for Foreigners - Beginners 1	7	2
The course is designed for s	students of the English programme. Students will become acquainted with the main characteristics of Czech (phonetic an	ا 🗠 م ud grammar featur	es) and they will
acquire basic language and	I speaking skills. The course focuses on pronunciation exercises, simple social phrases, and oral and written communicat	ion in the most co	mmon everyday
situations. The course cover	rs roughly lessons 1-3 of eština Express (Czech Express) by L. Holá and P. Bo ilová.		
04XCES72 C7	zech for Foreigners - Beginners 2	7	2
The language and communi	ication competences acquired in CESZ1 are further developed. Students deepen their knowledge of the declension and	coniugation syster	m and practise
basic communication topics.	The course covers roughly lessons 3-5 in Czech Express by L. Holá and P. Bo ilová.		
04XCESZ3 Cz	zech for Foreigners - Beginners 3	7	2
The course further develops	s the language and communication competences acquired in the XCESZ1 and XCESZ2 courses. The teaching focuses of	n building up basi	c vocabularv.
fixing correct pronunciation a	and deepening grammar, features through practice, as well as introducing the Czech culture. Students are asked to prod	uce simple texts a	nd they practise
frequent types of dialogue. T	They also practise understanding texts in terms of main ideas or looking for specific details in texts. The course covers roug	ghly lessons 5-7 ir	eština expres
1.			
04XCESM1 Cz	zech for Foreigners - Intermediate 1	Z	2
The course is focused on co	rrect pronunciation, important morphological phenomena, prepositional phrases, and verb forms as well as on extending th	ہ student´s vocab	ulary for various
social situations.			-
04XCESM2 Cz	zech for Foreigners - Intermediate 2	Z	2
The course develops the top	pics covered in CESM1 and is then focused on more difficult grammar phenomena. It practices writing, speaking, and rea	ہ ading skills and tra	ins the student
in understanding common a	abbreviations, abbreviated words, and mathematical terms and formulas.		
04XCESM3 Cz	zech for Foreigners - Intermediate 3	Z	2
The last course revises mor	rphological topics covered earlier and extends the student's knowledge of more difficult language phenomena. It is espec	ially focused on s	tylistics and
lexicology and on developing	ig the student's writing skills.		-
04XCESP1 Cz	zech for Foreign Students - Advanced 1	Z	2
The prerequisite of the cours	se is very good knowledge of the Czech language, i.e., communicative competences at least at level B2 of the Common Ei	uropean Framewo	rk of Reference.
It is focused partly on revision	on 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. Writ	ten practice
includes communication with	th teachers and faculty administrators.		
04XCESP2 Cz	zech for Foreigners - Advanced 2	Z	2
This course extends the stud	Ident's knowledge acquired in CESP1 and focuses on difficult language phenomena. It practises working with technical a	nd specialist texts	placing greater
emphasis on individual work	k.		
04XCESP3 Cz	zech for Foreigners - Advanced 3	Z	2
The course develops the stu	udent's knowledge from CESP2. It includes working with authentic specialist materials, their interpretation and presentation	on, and, finally, pre	esentation of the
student's project. Writing ski	ills necessary for professional communication are trained.		
04XFM1 Fre	ench for Intermediate Students M1	Z	2
French - intermediate FM Th	he objective of this three-semester course is to improve and further develop communication in the French language in bo	th written and ora	I 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 tr	ansmit general an	d technical
information and to solve pro	blems. FM1 The course builds on and further develops linguistic competence acquired at secondary school. It revises, sy	/stemizes and exp	ands language
skills gained in previous stud	dy. The following topics are covered: University studies in our country and in France, writing of transactional letters, CV, pe	rsonal 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 te	exts.
04XFM2 Fre	ench for Intermediate Students M2	Z	2
Course FM2 builds on FM1.	Linguistic structures and competence acquired in previous study are systemized and expanded. Reading popular science	texts, features typ	ical for technical
and scientific language (pas	ssives, nominalization, word formation). Topics: physics, power engineering, environment, Internet, success of French scie	ence and technolo	gy, French
scientists, artists and archite	ects. 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	(subordinate and i	nfinitive clauses,
participle structures, compound tenses). Text summaryStudents 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 v	work compiled from	n French articles
and one sown knowledge/experienceLonger monologues on topics /situations set for the examination are prepared. Text structure, conesion and	conerence.	-
04XFP1   French for Advanced Students P1	L Z	2 Students will
re advanced course the objective of this three-semester course is to improve and further develop communication in the effect language to transmit develop communication in the effect language to transmit develop communicate in social interaction and in academic, scientific and work environment. They will be able to use the language to transmit develop communication in the effect language to transmit develop communicate in social interaction and in academic, scientific and work environment. They will be able to use the language to transmit develop communicate in social interaction and in academic, scientific and work environment.	niten and oran on	Information and
to solve problems. EP1 The course builds on and further develops linguistic competence acquired at secondary school. Difficult grammar topics are in	repeated and expa	inded: subionctif
passé composé-imparfait, pronouns. The following specific topics are covered: University studies in our country and in France, writing of transaction	al letters, CV, pers	sonal statement,
request, answer to an advert, environmental issues, success of French science and technology, chosen topics from French regional culture, Paris. Top	pics of specialization	on: 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 of	on given topics. Fe	atures 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	n engineering envi	ronment. 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 co	vers a technical /a	applied 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		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. F21 The objective is to be able level activity using the knowledge of descendences the provide activity of the course in the science and s	le to communicate	at elementary
(Francouzeting pro za ata ku) It is extended with situations of communication and functions from the textbook Figure 1.4 ; introductions	ova, riencii ioi be	tion asking and
giving the directions simple instructions and questions. Special attention is paid to pronunciation. Spelling is explained in connection with pronunciation	tion and grammar	
0/YE72 French for Beginners 72	7	2
$V_{A}$	the textbook: Pray	∣ ∠ /da - Pravdová :
French for Beginners . Additional topics and skills are filled in from the textbook Espaces I. lesson 1 - 5 (introductions, invitation, welcoming, agreent	nent - disagreemer	nt. apology.
thanking, travelling, map of France, food, expression of will, wish, order, prohibition, pleasure). Correct pronunciation is practiced. Stress on oral comm	nunication. Specifi	c 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 i	nformation and lou	ud 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	y 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 le	cture notes French	n for Engineering
Students of FJFI. The course covers generals and specific topics: health- illness, sport, free time, environment, study, travelling in France, Paris, sho	opping, weather, u	niversity in our
country and in France, how to write CV, application, topics in mathematics, reading physics - mechanics, informatics, internet.		
04XFZ5 French for Beginners Z5	Z	2
All four skills acquired in FZ4 are further developed, as well as technical language. Students prepare a paper on a chosen popular science topic. The	ey 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	s from lecture
notes, success of French science and technology, information about France. Grammar is systemized and complemented with syntax (subordinate c	lauses, typical cor	njunctions,
subjunctive clauses, gerund, passive.		
04XNM2 German for Intermediate Students M2		2
I he course introduces other more complex grammatical structures and their application in communication based on technical texts, such as the relation the world of the basic of the 21st control texts, such as the relation texts on the application in communication based on technical texts, such as the relation texts of the 21st control texts, such as the relation texts of the 21st control texts of the second texts of the control texts of the second texts of texts	on between techno	logy and society,
The world at the beginning of the 21st century, linguistically more demanding texts on the environment, the language of mathematics, computers and practice reacting for information and reacting cloud, and appropriate language for visious purposes in and written communication. The source system	a car technology e	ther grommatical
plactise requiring for information and requiring about, and appropriate language for various purposes in oral and written communication. The course syste	matically levises 0	uner grannnaucar
0/XNM1 Gorman for Intermediate Students M1	7	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 are		the nassive) 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 Repu	blic and Germany	current
environmental issues together with all necessary expressions and phrases, expressions and phrases needed to chemists, mathematicians, physicis	sts, and the fundar	nentals of IT
terminology. It develops communication on related topics and is aimed at correct pronunciation, grammatical correctness and understandability.	,	
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	on between techno	logy and society,
the world at the beginning of the 21st century, linguistically more demanding texts on the environment, the language of mathematics, computers and	d car technology e	tc. Students
practise reading for information and reading aloud, and appropriate language for various purposes in oral and written communication. The course syste	matically revises of	ther grammatical
phenomena important for professional discourse (participles, relative clauses).		
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 le	evelled off at the b	eginning of the
course. The course is then focused on working with technical and scientific texts and practising reading techniques (skimming, scanning, reading fo	r 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.		
U4XNP2 German for Advanced Students P2	Z	2
The course develops the students' skills in working with professional scientific texts (understanding, summarising, note-taking, interpreting) while exten	ding their general	and subtechnical
vocabulary range. It introduces mathematical expressions and texts of nuclear power engineering. Increasing emphasis is placed on understanding an	u practising formal	communication,
Over whiten and oral (ov, relief of application, interview, scholarship), and more complex grammatical structures (i.e., subjunctive, indirect speech).	7	2
U4AINP3   German for Advanced Students P3		
the course consists or a main parts (general communicative situations, grammar and technical topics). Students will develop their vocabulary in a v (traffic problems and car accidents, accident report, filling in a form, complainte). Pased on presentations and technical and subtechnical texts, the v	anety of less com	n fields such as
wante provients and car accidents, accident report, mining in a rorm, compliants), based on presentations and technical and subjectifical and subjectifical and subjectifical and subjectifical and subjectifical texts, the vertice power engineering the environment, computer science, and car technology will also be extended. Only authentic professional texts are use	A By means of a	presentation
students are trained to process information gained from their reading of complex and difficult texts and present it to the class in a simplified oral form T	he course also inc	ludes translation
practice to and from German.		

04XRM1 Russian for Intermediate Students M1	7	2
The course is designed for students with previous knowledge of Russian from secondary schools. Students are supposed to know the Russian alphal	bet (both printed a	nd handwritten),
basic vocabulary for communication in everyday situations (introductions, socializing, greetings, shopping for food and objects of everyday need, ask	ing the way and g	iving directions),
they can use basic grammar structures (verbal and nominal forms, irregular verbs, pronouns). The initial knowledge corresponds to the achievement	t level of the RZ2	course. The
contents and scope of the course correspond approximately to the RZ3 course, but for half of the time allotted in the timetable.		
04XRM2 Russian for Intermediate Students M2	Z	2
The course is based on the RM1 course, its contents and scope correspond roughly to RZ4, however, for half of the time allotted in the timetable.		
04XRM3 Russian for Intermediate Students M3	Z	2
The course develops the knowledge and skills acquired in RM1 and RM2 and its contents and scope are roughly at the same level as those of RZ5, h	owever, for half of	the time allotted
in the timetable.		
04XRP1 Russian for Advanced Students P1	Z	2
The entrance requirement for the course is to achieve the B1 CEFR level. The objective of the course is revision of standard language structures, pr	acticing more diffi	cult grammar
structures, understanding the fundamentals of technical language and training writing skills.		
04XRP2   Russian for Advanced Students P2		2
The course is based on RP1. It expands grammatical structures important for understanding technical texts (verbal adjectives, participies, passives, attuatures). Strass is put an independent and written communication.	verb aspects, spe	ecific syntactic
AVDD2 Duccion for Advanced Studente D2	7	2
U4ARP3   RUSSIdITIOL AUVAILUEU SILUUETIIS P3 The course is based on RD2 and is mainly focused on working with technical and scientific texts (reading comprehension, oral and written paranetra	∠	
courses require good previous knowledge of general language at secondary level (listening, correct communication in everyday situations)	The courses dev	alon and expand
these skills. Further study is aimed at professional and technical skills (reading technical literature according to the students' specialization, oral and	d written interpreta	ation). Students
develop their subtechnical vocabulary and practice quick and correct communication in professional situations. They will be able to both speak write	accurately and wi	th confidence on
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 Rus	sian. Thus it begin	s with mastering
the Russian alphabet (for both reading and writing skills) and fundamentals of grammar necessary for everyday communication (listening and speak	king). Students wil	I be able to read
a short text with marked stress, understand its contents and summarize it.	<del></del>	
04XRZ2   Russian for Beginners Z2	Z	2
The second semester of the programme is designed to teach skills for basic communication in everyday situations and for reading easy and short situations are designed to teach skills for basic communication in everyday situations and for reading easy and short situations are designed to teach skills for basic communication in everyday situations and for reading easy and short situations are designed to teach skills for basic communication in everyday situations and for reading easy and short situations are designed to teach skills for basic communication in everyday situations and for reading easy and short situations are designed to teach skills for basic communication in everyday situations and for reading easy and short situations are designed to teach skills for basic communication in everyday situations and for reading easy and short situations are designed to teach skills for basic communication in everyday situations and for reading easy and short situations are designed to teach skills for basic communication in everyday situations and for reading easy and short situations are designed to teach skills for basic communication in everyday situations and for reading easy and short situations are designed to teach skills for basic communication in everyday situations are designed to teach skills for basic communications are designed to teach skills for basic communication	ubtechnical texts.	Students will be
able to communicate using short sentences and appropriate structures, and read aloud with confidence a short text without marked stress. I ney will paster further grammatical structures. They will have mastered with confidence the Russian alphabet and will be able to use it in writing	also develop theil	r vocabulary and
AVD 72	7	2
The course is based on P72 and includes further everyday tonics, develops understanding of short compact texts on new subtechnical tonics (for trai		A cf reading skills
and listening) and introduces new grammar. Students will be trained to distinguish intonation patterns while listening to spoken language. They will be	be able to respond	so as to be
understood, and to express their opinion. Writing skills will be trained on guided writing tasks and note-taking.		
04XRZ4 Russian for Beginners Z4	Z	2
The course is based on RZ3. It improves and expands the knowledge of general language in all four skills (reading and understanding longer texts with	a certain percent	age of unfamiliar
words, oral communication in everyday situations, writing longer texts). Students are trained to use grammar structures effectively (e.g., irregular very	bs, differences in	verb patterns
from Czech, modality, imperatives, conditionals). They practice and develop communication skills for everyday situations (food, travelling, free time),	and practice oral	and written
communication on more specific topics (environment, addictions, the green movement). They become acquainted with various geographical data (e.	.g., Siberia), learn	how to fill in
forms, look up the information from the timetable, learn about Russian holidays and typical meals.		
U4XRZ5   RUSSIAN TOF BEGINNETS Z5	∠	Z
information from a specialized text) and speaking, and to a certain extent, writing about the professional information obtained by reading the texts. C	noing, extracting a	lls are trained on
everyday topics. Studying grammar is based on professional and technical texts and only includes items typically used in professional communication	on (verbal adjectiv	es participles
passive voice). Students develop their technical and economic vocabulary, and are also trained in some professional skills (writing a CV, polite reque	est. etc.)	56, paraiopio6,
04XSM1 Spanish for Intermediate Students M1	Z	2
The course is designed for students whose competence is at level B1 of CEFR, i.e. those who studied Spanish in the secondary school. The 3-seme	ester course deve	ops standard
vocabulary and pays attention to further grammar topics (e.g., perifrasis verbales, futuro imperfecto, direct object and indirect object pronouns, nega	ative form of the in	perative, and
subjunctive), to written and oral communication on a given everyday or easy subtechnical topic, for which the students are trained by reading texts of	or listening to them	1.
04XSM2 Spanish for Intermediate Students M3	Z	2
The course develops the students' knowledge from the previous course (SM1). Students are gradually acquainted with fundamentals of Spanish for	specific purposes	s in order to be
able to work with specialized texts on the Internet.		
04XSM3 Spanish for Intermediate Students M3	Z	2
The course books are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of acac	lemic style. They v	vill be competent
enough to use the Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write s	short articles and	summaries. The
AVCD1 Characteristic for Adversed Ctudente D4	7	
04ASPT   Spanish for Spanish for Spanish for specific numbers as well as written communicat		Z Ruisitos: Joyol B2
of CEFR.	ion. Course prefer	quisites. level bz
04XSP2 Spanish for Advanced Students P2	7	2
Course XSP2 is the second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and s	vntax and focuses	on independent
written communication.		
04XSP3 Spanish for Advanced Students P3	Z	2
Course XSP3 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	focused on writter	n communication
based on what students will need in their career.		
04XSZ1 Spanish for Beginners Z1	Z	2
Course XSZ1 is the first stage of the five-semester programme of Spanish studies; during the first stage the students will master phonetics and func	lamental gramma	structures and
will be able to communicate at an elementary level on topics of everyday life. They will acquire and extend fundamental vocabulary of general Spani	sn and will develo	p it.
U4A522   Spanish for Beginners Students ZZ	and lovin will be -	
enable them to understand short adapted written texts and speech. Attention is also haid to cultural differences between Spanish-speeking countrie	s and others such	as the Czech
Republic. Realia of Spanish-speaking countries are also included.	501010 50011	

04XSZ3	Spanish for Beginners Z3	Z	2
This course builds upon	the foundations established in course XSZ2 and further develops students vocabulary and grammatical competence. It inclu	udes an introducti	on to the realia
and cultural context of S	panish-speaking countries, with a primary focus on Spain. Particular attention is given to key grammatical structures, includi	ing the pretérito p	erfecto, pretérito
indefinido, pretérito imp	erfecto, the gerund, and the imperative. The course also focuses on both written and spoken communication on general topic	cs. Students are p	repared for this
through targeted reading	g and listening activities.		
04XSZ4	Spanish for Beginners Z4	Z	2
The course is based on	course XSZ3. It develops the student's vocabulary and extends the knowledge of the culture and social customs of the Spa	nish speaking coι	intries, mainly of
Spain. It pays attention	to further grammar topics (perifrasis verbales, futuro imperfecto, direct object and indirect object pronouns, negative form of	the imperative, an	d subjunctive),
to written and oral comr	nunication on a given general or subtechnical topic, for which the student is trained by reading texts or listening to them.		
04XSZ5	Spanish for Beginners Z5	Z	2
The course books are supplemented with additional subtechnical materials, so the students will be gradually acquainted with peculiarities of Spanish for specific purposes. In its final			
part, the general Spanis	sh course based on the course book will end with a written and oral examination.		

# List of courses of this pass:

Code	Name of the course	Completion	Credits
00EKOT	Economy in Technology	Z	1
	The course introduces the basics of micro- and macroeconomics.	1	'
00ETV	Ethics of Science and Technology	Z	1
00MAM1	Essentials of High School Course 1	Z	1
	Students are introduced to mathematical concepts and methods used in the introductory physics course.	I	1
00MAM2	Essentials of High School Math Course 2	Z	1
	Review of basics of high school mathematics.	I	1
00PT	Preparatory Week	Z	2
00RET	Rhetoric	Z	1
The course is foc	used on the acquisition of speech and voice techniques and on the rules of correct pronounciation. The course is also devoted to the	composition of pul	lic speech
as well as to its	nonverbal aspects. Stylistics exercises, strategies for coping with stage-fright and a short excursion into the history of rhetoric are an	integral part of the	e course.
00UPRA	Introduction to Law	Z	1
00UPSY	Introduction to Psychology	Z	1
01ANB3	Calculus B 3	Z.ZK	8
1. Functional sec	quences and series - convergence range, criteria of uniform convergence, continuity, limit, differentiation and integration of functional	series, power serie	es, Series
Expansion, Taylo	r's theorem. 2. Ordinary differential equations - equations of first order (method of integration factor, equation of Bernoulli, separation	of variables, hom	ogeneous
equation and exact	equation) and equations of higher order (fundamental system, reduction of order, variation of parameters, equations with constant coe	fficients and specia	al right-hand
side, Euler differen	tial equation). 3. Metric spaces - metric, norm, scalar product, neighborhood, interior and exterior points, boundary point, isolated and	d non-isolated poir	it, boundary
of set, completenes	ss of space, Hilbert spaces. Orthogonal polynomials. Complete orthogonal systems. 4. Fourier series - expansion of functions into Fouri	er series, trigonom	etric Fourier
series and their co	onvergence. 5. Differential calculus of functions of several variables - limit, continuity, partial and directional derivative, gradient, total	derivatives and tan	gent plane,
	Taylor series, elementary terms of vector analysis, Jacobi matrix. 6. Functions defined implicitly by one or several equation	S.	
01ANB4	Calculus B 4	Z,ZK	6
[1] Diferenciální p	o et funkcí více prom nných a funkcionálních vektor . [2] Funkce zadané implicitn . [3] Taylorovy ady funkce více prom nných. [4] l	Regulární zobrazei	ní, zám na
prom nných, ne	kartézské soustavy sou adnic. [5] Lokální, vázané a globální extrémy funkce více prom nných. [6] Základy teorie míry a obrys konsti	ukce Lebesgueov	y miry. [7]
Integraini po et i	unkce vice promi nnych - Riemanni v a Lebesgue v integral, zakladni vlastnosti, Fubiniova v ta, v ta o substituci. Levino a Lebesgu	eova v ta. Limita,	spojitost a
	derivace integralu podle parametru. [6] integraly po k ivkach a piochach, integralni v ty.	7	0
UILAL	Linear Algebra 1		Z
	theorem	inear mappings. 7.	FIODEIIIUS
011 01 2		7.71	4
Outline: 1 Inver	LITEd AIVEDIA 2	d quadratic forms	5 Scalar
product and orthog	so matrix and operation 2.1 emination and determinant of operator. Outline of the exercises: 1 Methods for calculation of inverse matri	ices 2 Methods of	f calculation
of determinants	3. Calculation of eigenvalues and eigenvectors. 4. Hermitian and guadratic forms. Canonical form. 5. Scalar product and orthogonali	ty. Calculation of o	rthogonal
	complements. 6. Geometry exercises and examples. 7. Adjoint operators.		0
01LALZ	Linear Algebra 1. exam	ZK	2
01MAN	Calculus 1	7	4
	Basic calculus (real analysis, functions of one real variable, differential calculus).	-	
01MAN2	Calculus 2	7.7K	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	vergence 3.
Real and complex	power series, the Cauchy-Hadamard theorem, expansion of function into power series, summation of infinite series. 4. Theory of integ	rals: primitives, def	inite integral
	(Riemann definition), techniques of integration and application of integrals, Generalized Riemann integral		
01MANZ	Calculus 1, exam	ZK	4
01NME2	Numerical Methods 2	KZ	2
The course is devo	, ted to numerical solution of boundary-value problems and intial-boundary-value problems for ordinary and partial differential equations.	It explains method	s converting
bound	dary-value problems to initial-value problems and finite-difference methods for elliptic, parabolic and first-order hyperbolic partial diffe	rential equations.	-
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	continuing till the k	Colmogorov
definition. The noti	ons as random variable, distribution function of random variable and characteristics of random variable are treated and basic limit the	orems are stated	and proved.
On th	e basis of this theory the basic methods of mathematical statistics such as estimation of distribution parameters and hypothesis testi	ng are explained.	

011110// 1	Equations of Mathematical Physics	Z,ZK	7
The subject of this	course is solving integral equations, theory of generalized functions, classification of partial differential equations, theory of integral to partial differential equations, theory of integral to partial differential equations, theory of partial e	ransformations, and	d solution of
	partial differential equations (boundary value problem for eliptic PDE, mixed boundary problem for eliptic PDE).	7.74	2
1 Random trial w	Initioduction to Probability in vith finite set of possible results, classical probability independent random events 2 Probability and combinatorics 3 Probability and c	∠,∠n   leometry Bertrands	S paradox
4.Conditional proba	ability, Bayes theorem, medical diagnosis, Simpsons paradox 5.Random variable with discrete state space, its distribution and mean	value 6.Problems in	nvolving the
	calculation of mean value 7. Probabilistic method in graph theory 8. Random algorithms, Morris algorithm and its variants		-
01UP2	Introduction to Probability 2	Z,ZK	3
1. One-dimensiona	al continuous random variable and its statistical description. 2. Distribution function and probability density. 3. Axiomatic introduction c	f probability and co	onnection to
measure theory. 4.	Numerical characteristics of continuous random variables. 5. Selected variants of continuous distributions and their characteristics. 6 estimations: 7. Generating pseudorandom numbers from the selected distribution	. Elementary metho	bas for point
02DEE1	History of Physics 1	7	2
Physics and its pla	ace in the system of sciences. The relationship of man and nature. Natural sciences in ancient Orientand Greece, Greek natural phile	sophers, Aristotle.	Physics in
Helenistic period,	Archimed. Arabic science, European science in Middle Ages. Renaissance - da Vinci, Giordano Bruno. Copernicus, Kepler, Galileo,	Huygens. The birth	of physics
	as experimental science. Newton and his work.		
02DEF2	History of Physics 2	Z	2
Development o	f classical mechanics after Newton, Bernoulli's, Euler, Lagrange. Historical development of optics, corpuscular and wave approach. I	Electricity and mag	netism -
and relativistic n	anism, electrodynamics and electromagnetism, raraday and maxwell. Thermodynamics and its laws, statistical physics, Boltzmann.	nergy Elementary	n quantum narticles
	standard model. The concept of Nature and Universe of today.		particite,
02ELMA	Electricity and Magnetism	Z,ZK	6
Electric charge, Co	ulomb's law, electrostatic field, Gauss' law. Electric dipole, polarization. Conductors and dielectrics. Electric current and circuits, conductors and dielectrics.	ductivity. Basics of t	he relativity
theory.	Electrodynamic forces, magnetic field. Magnetic dipole, magnetics. Electromagnetic induction, RLC circuits. Electromagnetic waves,	Maxwell equations.	
02EXF	Experimental Physics	ZK	2
The goal of this sub	oject is to introduce the students the principles of physics measurements, their techniques, methods and instruments that are used to analysis of measured data	or such measureme	nts, and the
02KE		7 7K	3
State description	n, wave function, postulates of quantum mechanics, Born s statistical interpretation, expectation values, Schrödinger equation, Heise	enberg uncertainty	principle,
	quantization of angular momentum, solution of simple systems, hydrogen atom.	0 ,	/
02MECH	Mechanics	Z	4
Introduction to ph	ysics, physical quantities and units. Kinematics of a particle, basic types of motion and their superposition. Dynamics of a particle, so	olving equations of	motion for
one-dimensional n	notion, motion in a central force field, forces in non-inertial reference frames. Mechanics of a system of particles, two-body problems,	particle collisions.	Mechanics
	Mechanics - Examination	7K	2
UZIVIECI IZ	The content of the subject is the examination according to the plan of studies		2
02PRA1	Experimental Laboratory 1	K7	6
Lecture is intended	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E	ngineering). But it o	can be also
attended by student	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with the	ngineering). But it o eliterature), the imp	can be also lementation
attended by student	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluation of the provided to the processing and evaluation of the provided to provide the records of the physical students and evaluation to the provided to	ngineering). But it of eliterature), the imp on of results. At the	can be also elementation e same time
attended by student of the measuremen	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physics.	ngineering). But it of eliterature), the imp on of results. At the	can be also lementation e same time
attended by student of the measuremen 02PRA2	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physics. Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E	ngineering). But it of eliterature), the imp on of results. At the KZ	can be also elementation e same time 6 can be also
attended by student of the measuremen 02PRA2 Lecture is intended attended by student	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physics. Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th	ngineering). But it of eliterature), the imp on of results. At the KZ ngineering). But it of eliterature), the imp	can be also elementation e same time 6 can be also elementation
Cecture is intended attended by studeni of the measuremer 02PRA2 Lecture is intended attended by studeni of the measuremer	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th tt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physics. Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati	ngineering). But it of eliterature), the imp on of results. At the KZ ngineering). But it of eliterature), the imp on of results. At the	can be also elementation e same time 6 can be also elementation e same time
02PRA2 Lecture is intended of the measuremen 02PRA2 Lecture is intended attended by student of the measuremen	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th th (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluation practically extendthe knowledge gained in lectures on physics. Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th th (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluation that (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluation practically extendthe knowledge gained in lectures on physics.	ngineering). But it of eliterature), the imp on of results. At the KZ ngineering). But it of eliterature), the imp on of results. At the	can be also elementation e same time 6 can be also elementation e same time
02PRA2 Lecture is intended of the measuremen 02PRA2 Lecture is intended attended by studeni of the measuremen 02SMF	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physics. Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physics. Seminar of Mathematical Physics	ngineering). But it d eliterature), the imp on of results. At the KZ ngineering). But it d eliterature), the imp on of results. At the Z	can be also elementation e same time 6 can be also elementation e same time 2
02PRA2 Lecture is intended of the measuremen 02PRA2 Lecture is intended attended by studeni of the measuremen 02SMF The purpose of th	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physics. Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physics. Seminar of Mathematical Physics ne seminar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physics departm	ngineering). But it d eliterature), the imp on of results. At the KZ ngineering). But it d eliterature), the imp on of results. At the Z nent will present sin	can be also elementation e same time 6 can be also elementation e same time 2 nple tasks
Cecture is intended attended by studeni of the measuremer 02PRA2 Lecture is intended attended by studeni of the measuremer 02SMF The purpose of th	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th tt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physics. Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physics. Seminar of Mathematical Physics ne seminar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physics departn concerning their scientific activities that could become the topics of the student?s bachelor theses in the next year	ngineering). But it d eliterature), the imp on of results. At the KZ ngineering). But it d eliterature), the imp on of results. At the Z nent will present sin	can be also elementation e same time 6 can be also elementation e same time 2 nple tasks
Cecture is intended attended by studeni of the measuremer 02PRA2 Lecture is intended attended by studeni of the measuremer 02SMF The purpose of th 02TEF1 The course is an int	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th tt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extendthe knowledge gained in lectures on physics. Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extendthe knowledge gained in lectures on physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extendthe knowledge gained in lectures on physics. Seminar of Mathematical Physics ne seminar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physics departm concerning their scientific activities that could become the topics of the student?s bachelor theses in the next year Theoretical Physics 1 troduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalisms	ngineering). But it d eliterature), the imp on of results. At the KZ ngineering). But it d eliterature), the imp on of results. At the Z nent will present sin Z,ZK as well as diferent	an be also elementation e same time 6 can be also elementation e same time 2 nple tasks 4 approaches
Cecture is intended attended by studeni of the measuremer 02PRA2 Lecture is intended attended by studeni of the measuremer 02SMF The purpose of th 02TEF1 The course is an inti to description of c	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th tt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extendthe knowledge gained in lectures on physics. Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th tt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extendthe knowledge gained in lectures on physics. Seminar of Mathematical Physics ne seminar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physics departn concerning their scientific activities that could become the topics of the student?s bachelor theses in the next year Theoretical Physics 1 troduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalisms dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on elementar	ngineering). But it dieliterature), the imp on of results. At the KZ ngineering). But it dieliterature), the imp on of results. At the Z nent will present sin Z,ZK as well as diferent y examples like the	an be also elementation e same time 6 can be also elementation e same time 2 nple tasks 4 approaches e two-body
02PRA2 Lecture is intended of the measuremen 02PRA2 Lecture is intended attended by student of the measuremen 02SMF The purpose of th 02TEF1 The course is an int to description of c problem, the moti	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th the (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extendthe knowledge gained in lectures on physics. Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th tt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extendthe knowledge gained in lectures on physics. Seminar of Mathematical Physics ne seminar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physics departn concerning their scientific activities that could become the topics of the student?s bachelor theses in the next year Theoretical Physics 1 troduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalisms dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on elementar on of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principles	ngineering). But it of eliterature), the imp on of results. At the KZ ngineering). But it of eliterature), the imp on of results. At the Z nent will present sin Z,ZK as well as diferent y examples like the of mechanics. The	an be also elementation e same time 6 can be also elementation e same time 2 nple tasks 4 approaches e two-body e subject is
Cecture is intended attended by studeni of the measuremer 02PRA2 Lecture is intended attended by studeni of the measuremer 02SMF The purpose of th 02TEF1 The course is an int to description of co problem, the moti	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th the (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extendthe knowledge gained in lectures on physics. Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th thet (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physics. Seminar of Mathematical Physics ne seminar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physics departn concerning their scientific activities that could become the topics of the student?s bachelor theses in the next year Theoretical Physics 1 troduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalisms dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on elementar on of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principles the first part of the course of classical theoretical physics (02TEF1, 02TEF2).	ngineering). But it dieliterature), the imp on of results. At the MZ ngineering). But it dieliterature), the imp on of results. At the literature), the imp on of results. At the Z nent will present sin Z,ZK as well as diferent y examples like the s of mechanics. The	an be also elementation e same time 6 can be also elementation e same time 2 nple tasks 4 approaches e two-body e subject is
Cecture is intended attended by studeni of the measuremer 02PRA2 Lecture is intended attended by studeni of the measuremer 02SMF The purpose of th 02TEF1 The course is an int to description of c problem, the moti	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physics. Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physics. Seminar of Mathematical Physics ne seminar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physics departn concerning their scientific activities that could become the topics of the student?s bachelor theses in the next year Theoretical Physics 1 troduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalisms dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on elementar on of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principles the first part of the course of classical theoretical physics (02TEF1, 02TEF2). Theoretical Physics 2	ngineering). But it dieliterature), the imp on of results. At the KZ ngineering). But it dieliterature), the imp on of results. At the Z nent will present sin Z,ZK as well as diferent y examples like the s of mechanics. The Z,ZK	an be also elementation e same time 6 can be also elementation e same time 2 nple tasks 4 approaches e two-body e subject is 4
Lecture is intended         attended by studeni         of the measuremer         02PRA2         Lecture is intended         attended by studeni         of the measuremer         02SMF         The purpose of the         02TEF1         The course is an interview is an interview.         to description of corresting in the motion         02TEF2         Tensors and tran         Minkowski space.ti	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extendthe knowledge gained in lectures on physics. Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extendthe knowledge gained in lectures on physics. Seminar of Mathematical Physics ne seminar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physics departn concerning their scientific activities that could become the topics of the student?s bachelor theses in the next year Theoretical Physics 1 roduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalisms dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on elementar on of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principles the first part of the course of classical theoretical physics (02TEF1, 02TEF2). Theoretical Physics 2	ngineering). But it dieliterature), the imp on of results. At the KZ ngineering). But it dieliterature), the imp on of results. At the Z nent will present sin Z,ZK as well as diferent y examples like the s of mechanics. The Z,ZK d classical field the magnetic radiation	an be also elementation e same time 6 can be also elementation e same time 2 nple tasks 4 approaches e two-body e subject is 4 ory in the n the dincla
Cecture is intended attended by studeni of the measuremer 02PRA2 Lecture is intended attended by studeni of the measuremer 02SMF The purpose of th 02TEF1 The course is an inti to description of c problem, the moti 02TEF2 Tensors and tran Minkowski space-ti	despecially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E to interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with the ta (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluation practically extendthe knowledge gained in lectures on physical Engineering, Nuclear E to the specializations who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E to interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with the tacquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluation practically extendthe knowledge gained in lectures on physics.  Seminar of Mathematical Physics Seminar of Mathematical Physics Concerning their scientific activities that could become the topics of the student? bachelor theses in the next year Theoretical Physics 1 troduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalisms dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on elementar on of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principles the first part of the course of classical theoretical physics (02TEF1, 02TEF2). Theoretical Physics 2 sformations in physics. Mechanics of point mass, rigid body and continuum. The special theory of relativity: relativistic mechanics an me. Classical electrodynamics: Maxwell's equations in the Minkowski space-time, electromagnetic waves in dielectric media, electror approximation.	ngineering). But it dieliterature), the imp on of results. At the KZ ngineering). But it dieliterature), the imp on of results. At the Z nent will present sin Z,ZK as well as diferent y examples like the s of mechanics. The Z,ZK d classical field the magnetic radiation i	an be also dementation e same time 6 can be also dementation e same time 2 nple tasks 4 approaches e two-body e subject is 4 ory in the n the dipole
Cecture is intended attended by studeni of the measuremer 02PRA2 Lecture is intended attended by studeni of the measuremer 02SMF The purpose of th 02TEF1 The course is an int to description of c problem, the moti 02TEF2 Tensors and tran Minkowski space-ti	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physics. Experimental Laboratory 2 d especializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physics. Seminar of Mathematical Physics ne seminar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physics departn concerning their scientific activities that could become the topics of the student?s bachelor theses in the next year Theoretical Physics 1 troduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalisms dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on elementar on of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principles the first part of the course of classical theoretical physics (02TEF1, 02TEF2). Theoretical Physics 2 sformations in physics. Mechanics of point mass, rigid body and continuum. The special theory of relativity: relativistic mechanics an me. Classical electrodynamics: Maxwell's equations in the Minkowski space-time, electromagnetic waves in dielectric media, electror approximation.	ngineering). But it dieliterature), the imp on of results. At the KZ ngineering). But it dieliterature), the imp on of results. At the Z nent will present sin Z,ZK as well as diferent y examples like the of mechanics. The d classical field the magnetic radiation i Z,ZK	an be also dementation e same time 6 can be also dementation e same time 2 nple tasks 4 approaches t two-body e subject is 4 ory in the n the dipole
Lecture is intended attended by studeni of the measuremer 02PRA2 Lecture is intended attended by studeni of the measuremer 02SMF The purpose of th 02TEF1 The course is an int to description of c problem, the moti 02TEF2 Tensors and tran Minkowski space-ti 02TER Thermal expansior	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th tt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extendthe knowledge gained in lectures on physica.  Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th t (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extendthe knowledge gained in lectures on physics.  Seminar of Mathematical Physics es esminar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physica departn concerning their scientific activities that could become the topics of the student?s bachelor theses in the next year Theoretical Physics 1 roduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalisms dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on elementar on of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principles the first part of the course of classical theoretical physics (02TEF1, 02TEF2). Theoretical Physics 2 sformations in physics. Mechanics of point mass, rigid body and continuum. The special theory of relativity: relativistic mechanics an approximation. Heat and Molecular Physics heat and Molecular Physics heat transfer; stationary and non-stationary heat conduction, heat transfe	ngineering). But it of eliterature), the imp on of results. At the MZ ngineering). But it of eliterature), the imp on of results. At the Z nent will present sin Z,ZK as well as diferent y examples like the of mechanics. The C,ZK d classical field the magnetic radiation i Z,ZK ic principle, ideal an	can be also elementation e same time 6 can be also elementation e same time 2 nple tasks 4 approaches t two-body e subject is 4 ory in the n the dipole 4 nd real gas,
Lecture is intended attended by studeni of the measuremer 02PRA2 Lecture is intended attended by studeni of the measuremer 02SMF The purpose of th 02TEF1 The course is an int to description of c problem, the moti 02TEF2 Tensors and tran Minkowski space-ti 02TER Thermal expansior entropy; non-chemi	d especially for students who intend to study some of the physical specializations of FNSPE (branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th tt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extendthe knowledge gained in lectures on physics.  Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th t (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extendthe knowledge gained in lectures on physics. Seminar of Mathematical Physics ne seminar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physica departn concerning their scientific activities that could become the topics of the student?s bachelor theses in the next year Theoretical Physics 1 roduction to analytical mechanics. The students acquire knowledge after the prises (02TEF1, 02TEF2). Theoretical Physics 2 sformations in physics. Mechanics of point mass, rigid body and continuum. The special theory of relativity: relativistic mechanics an me. Classical electrodynamics: Maxwell's equations in the Minkowski space-time, electromagnetic waves in dielectric media, electror approximation. Heat and Molecular Physics heat transfer; stationary and non-stationary heat conduction, heat transfer and penetration; 1st and 2nd thermodynamic cal systems: dielectric and magnetic materials; Maxwell relations and thermodynamic potentials; kinetic theory: Maxwell's velocity dis	ngineering). But it d reliterature), the imp on of results. At the Mission of results. At the reliterature), the imp on of results. At the Composite the results. At the Composite the solution of the the the solution of the the the solution of the the the solution of the the the the solution of the the the the the solution of the the the the the the the solution of the the the the the the the the the solution of the	can be also elementation e same time 6 can be also elementation e same time 2 nple tasks 4 approaches e two-body e subject is 4 ory in the n the dipole 4 nd real gas, on theorem.
Lecture is intended attended by studeni of the measuremer 02PRA2 Lecture is intended attended by studeni of the measuremer 02SMF The purpose of th 02TEF1 The course is an int to description of c problem, the moti 02TEF2 Tensors and tran Minkowski space-ti 02TER Thermal expansior entropy; non-chemi 02TSFA	d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th tt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physics. Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extend the knowledge gained in lectures on physics. Seminar of Mathematical Physics ne seminar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physics departn concerning their scientific activities that could become the topics of the student?s bachelor theses in the next year Theoretical Physics 1 roduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalisms dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on elementar on of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principles the first part of the course of classical theoretical physics (02TEF1, 02TEF2). Theoretical Physics 2 sformations in physics. Mechanics of point mass, rigid body and continuum. The special theory of relativity: relativistic mechanics an me. Classical electrodynamics: Maxwell's equations in the Minkowski space-time, electromagnetic waves in dielectric media, electror approximat	ngineering). But it dieliterature), the imp on of results. At the MZ ngineering). But it dieliterature), the imp on of results. At the literature), the imp on of results. At the Z nent will present sin Z,ZK as well as diferent y examples like the s of mechanics. The C,ZK d classical field the magnetic radiation i Z,ZK ic principle, ideal at tribution,equipartitic Z,ZK	can be also elementation e same time 6 can be also elementation e same time 2 nple tasks 4 approaches e two-body e subject is 4 ory in the n the dipole 4 nd real gas, on theorem. 4
Lecture is intended attended by studeni of the measuremer 02PRA2 Lecture is intended attended by studeni of the measuremer 02SMF The purpose of th 02TEF1 The course is an int to description of c problem, the moti 02TEF2 Tensors and tran Minkowski space-ti 02TER Thermal expansior entropy; non-chemi 02TSFA Foundation of therm	d especially for students who intend to study some of the physical specializations of PNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th tt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extendthe knowledge gained in lectures on physics. Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th nt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extendthe knowledge gained in lectures on physics. Seminar of Mathematical Physics ne seminar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physics departn concerning their scientific activities that could become the topics of the student?s bachelor theses in the next year Theoretical Physics 1 roduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalisms dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on elementar on of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principles the first part of the course of classical theoretical physics (02TEF1, 02TEF2). Theoretical Physics 2 sformations in physics. Mechanics of point mass, rigid body and continuum. The special theory of relativity: relativistic mechanics an me. Classical electrodynamics: Maxwell's equations in the Minkowski space-time, electromagnetic waves in dielectric media, electror approximatio	ngineering). But it dieliterature), the imp on of results. At the MZ ngineering). But it dieliterature), the imp on of results. At the Z nent will present sin Z,ZK as well as diferent y examples like the s of mechanics. The Z,ZK d classical field the nagnetic radiation i Z,ZK ic principle, ideal au tribution, equipartitic Z,ZK ier principle. Statist	can be also dementation e same time 6 can be also dementation e same time 2 nple tasks 4 approaches e two-body e subject is 4 ory in the n the dipole 4 nd real gas, on theorem. 4 cal entropy.
Cecture is intended attended by studeni of the measuremer O2PRA2 Lecture is intended attended by studeni of the measuremer O2SMF The purpose of th O2TEF1 The course is an int to description of of problem, the motii O2TEF2 Tensors and tran Minkowski space-ti O2TER Thermal expansior entropy; non-chemi O2TSFA Foundation of therm Basics of many boo	If especially for students who intend to study some of the physical specializations of PNSPE (branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th tt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluate practically extend the knowledge gained in lectures on physics.  Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th tt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluate practically extend the knowledge gained in lectures on physics.  Seminar of Mathematical Physics estimates to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physics departine concerning their scientific activities that could become the topics of the student?s bachelor theses in the next year Theoretical Physics 1 roduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalisms bynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on elementar on of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principles the first part of the course of classical theory of relativity: relativistic mechanics an me. Classical electrodynamics: Maxwell's equations in the Minkowski space-time, electromagnetic waves in dielectric media, electror approximation. Heat and Molecular Physics nof materials, heat transfer; stationary and non-stationary heat conduction, heat transfer and penetration; 1st a	ngineering). But it of reliterature), the imp on of results. At the MZ ngineering). But it of reliterature), the imp on of results. At the Z nent will present sin Z,ZK as well as diferent y examples like the of mechanics. The d classical field the magnetic radiation i Z,ZK d classical field the magnetic radiation i Z,ZK ic principle, ideal at tribution, equipartitic ier principle. Statist ier principle. Statist iensemble, Fermi g	an be also dementation e same time 6 can be also dementation e same time 2 nple tasks 4 approaches two-body e subject is 4 ory in the n the dipole 4 nd real gas, on theorem. 4 ical entropy. gas, models
Lecture is intended attended by studeni of the measuremer 02PRA2 Lecture is intended attended by studeni of the measuremer 02SMF The purpose of th 02TEF1 The course is an int to description of c problem, the moti 02TEF2 Tensors and tran Minkowski space-ti 02TER Thermal expansior entropy; non-chemi 02TSFA Foundation of therm Basics of many boo 02VOAF	despecially for students who intend to study some of the physical specializations of PNSPE (branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th tt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extendthe knowledge gained in lectures on physics. Experimental Laboratory 2 despecially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E ts interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th tt (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluati practically extendthe knowledge gained in lectures on physics. Seminar of Mathematical Physics to concerning their scientific activities that could become the topics of the student?s bachelor theses in the next year Theoretical Physics 1 troduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalisms dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on elementar on of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principles the first part of the course of classical theoretical physics (02TEF1, 02TEF2). Theoretical Physics 2 sformations in physics. Mechanics of point mass, rigid body and continuum. The special theory of relativity: relativistic mechanics an me. Classical electrodynamics: Maxwell's equations in the Minkowski space-time, electromagnetic waves in dielectric media, electror approximation. Heat and Molecular Physics nodynamics and statistical physics. Thermodynamic potential, the Joule Thomson effect, conditions	ngineering). But it of eliterature), the imp on of results. At the MZ ngineering). But it of eliterature), the imp on of results. At the Z nent will present sin Z,ZK as well as diferent y examples like the s of mechanics. The C,ZK d classical field the magnetic radiation i Z,ZK ic principle, ideal at tribution, equipartitic Z,ZK iensemble, Fermi of Z,ZK	can be also dementation e same time 6 can be also dementation e same time 2 nple tasks 4 approaches e two-body e subject is 4 ory in the n the dipole 4 nd real gas, on theorem. 4 ical entropy. gas, models 6
Contraction of the measuremer 02PRA2 Lecture is intender attended by student of the measuremer 02SMF The purpose of the 02TEF1 The course is an inti- to description of co- problem, the moti- 02TEF2 Tensors and tran- Minkowski space-ti- 02TER Thermal expansion- entropy; non-chemi- 02TSFA Foundation of therm Basics of many boo- 02VOAF Wave phenomena	despecially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E is interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th th t (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluate practically extendthe knowledge gained in lectures on physics.  Experimental Laboratory 2 despecially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E is interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with the ta (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluate practically extendthe knowledge gained in lectures on physics. Seminar of Mathematical Physics te eseminar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physics departing concerning their scientific activities that could become the topics of the Lagrange and Hamiltonian formalisms dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on elementar on of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principles the first part of the course of classical theoretical physics (02TEF1, 02TEF2). Theoretical Physics 2 sformations in physics. Mechanics of point mass, rigid body and continuum. The special theory of relativity: relativistic mechanics an me. Classical electrodynamics: Maxwell's equations in the Minkowski space-time, electromagnetic waves in dielectric media, electror approximation. Heat and Molecular Physics in	ngineering). But it of eliterature), the imp on of results. At the main end of results. At the eliterature), the imp on of results. At the main eriterature), the imp on of results. At the main eriterature), the imp on of results. At the main eriterature, the main eriterature, the sof mechanics. The sof mechanics. The construction eriterature is of mechanics. The construction eriterature	can be also elementation e same time 6 can be also elementation e same time 2 nple tasks 4 approaches e two-body e subject is 4 ory in the n the dipole 4 nd real gas, on theorem. 4 ical entropy. gas, models 6 diffraction,
Lecture is intended attended by student of the measuremer 02PRA2 Lecture is intended attended by student of the measuremer 02SMF The purpose of th 02TEF1 The course is an int to description of c problem, the moti 02TEF2 Tensors and tran Minkowski space-ti 02TER Thermal expansior entropy; non-chemi 02TSFA Foundation of therm Basics of many boo 02VOAF Wave phenomena coherence. Geo	If especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E is interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with the tit (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluation are specializations. In Experimental Laboratory 2 (a especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E is interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th the caquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluation practically extendthe knowledge gained in lectures on physics.  Seminar of Mathematical Physics e seminar is to iluminate mathematical physics by vitue of solved examples. It is supposed that the teachers of the physics departs concerning their scientific activities that could become the topics of the student?s bachelor theses in the next year Theoretical Physics 1  roduction to analytical mechanics. The students acquire knowledge dist of the course cover differential and integral principles the first part of the course of classical theoretical Physics 2  sformations in physics. Mechanics of point mass, rigid body and continuum. The special theory of relativity: relativistic mechanics an me. Classical electrodynamics: Maxwell's equations in the Minkowski space-time, electromagnetic waves in dielectric media, electror approximation.  Heat and Molecular Physics nodynamics and statistical physics. Phermodynamics and thermodynamic canonical and grand-canonica of crystals and the black body radiation. The Boltzmann equation is usetod discusses	ngineering). But it dieliterature), the imp on of results. At the NZ ngineering). But it dieliterature), the imp on of results. At the Z nent will present sim Z,ZK as well as diferent y examples like the s of mechanics. The Z,ZK d classical field the magnetic radiation i Z,ZK ic principle, ideal at tribution,equipartitic Z,ZK iensemble, Fermi g Z,ZK ation, interference, oglie waves,the Sch	can be also elementation e same time 6 can be also elementation e same time 2 nple tasks 4 approaches e two-body e subject is 4 ory in the n the dipole 4 ory in the n the dipole 4 ical entropy. gas, models 6 diffraction, nrodinger
Lecture is intended attended by studeni of the measuremer 02PRA2 Lecture is intended attended by studeni of the measuremer 02SMF The purpose of th 02TEF1 The course is an inti to description of c problem, the moti 02TEF2 Tensors and tran Minkowski space-ti 02TER Thermal expansior entropy; non-chemi 02TSFA Foundation of therm Basics of many boo 02VOAF Wave phenomena coherence. Geo	If especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E is interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with the taqcuire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluate practically extendthe knowledge gained in lectures on physics.  Experimental Laboratory 2 d especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E is interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with th ta (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluate practically extendthe knowledge gained in lectures on physics.  Seminar of Mathematical Physics to some of the basic concepts of the tagrange and Hamiltonian formalisms dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on elementar on of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principles the first part of the course of classical theoretical Physics 2 sformations in physics. Mechanics of point mass, rigid body and continuum. The special theory of relativity: relativistic mechanics an me. Classical electrodynamics: Maxwell's equations in the Minkowski space-time, electromagnetic waves in dielectric media, electror approximation. Heat and Molecular Physics Networks and statistical physics. Thermodynamic pathentials, knet transfer; stationary and non-stationary heat conduction, heat transfer and penetration; 1st and 2nd thermodynamic cal systems: dielectric and magnetic materials; Maxwell relations and thermodynamic potentials; kinetic theory: Maxwell's velocity dis Corresta and the transfe	ngineering). But it dieliterature), the imp on of results. At the MZ ngineering). But it dieliterature), the imp on of results. At the Z neme the imp of mechanics. The imp of m	can be also elementation e same time 6 can be also elementation e same time 2 nple tasks 4 approaches e two-body e subject is 4 ory in the n the dipole 4 ory in the n the dipole 4 ical entropy. gas, models 6 diffraction, prodinger
Cecture is intended attended by studeni of the measuremer 02PRA2 Lecture is intended attended by studeni of the measuremer 02SMF The purpose of th 02TEF1 The course is an int to description of of problem, the motii 02TEF2 Tensors and tran Minkowski space-ti 02TER Thermal expansior entropy; non-chemi 02TSFA Foundation of therm Basics of many boo 02VOAF Wave phenomena coherence. Geou	If especially for students who intend to study some of the physical specializations of FNSPE (branch Physical Engineering, Nuclear E is interested in the otherspecializations. In Experimental aboratory students learn how to prepare for experiments (including work with th the especializations of the physical specializations of FNSPE (branch Physical Engineering, Nuclear E experimental aboratory students who to prepare for experimental specializations of FNSPE (branch Physical Engineering, Nuclear E especializations of the physical specializations of FNSPE (branch Physical Engineering, Nuclear E especializations of the physical specializations of FNSPE (branch Physical Engineering, Nuclear E especializations in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with the t (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluation practically extendite knowledge gained in lectures on physics.  Seminar of Mathematical Physics ne seminar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physics departm concerning their scientific activities that could become the topics of the student's bachelor theses in the next year Theoretical Physics 1 rodouction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalisms stynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on elementar on of a system of constrained mass points, and of a rigid body. Advanced parts of the course ore over differential and integral principles the first part of the course of classical theoretical physics (02TEF1, 02TEF2). Theoretical Physics 2 sformations in physics. Maxwell's equations in the kinkowski space-time, electromagnetic waves in dielectric media, electro approximation. Thermodynamics and Statistical physics. Thermodynamic p	ngineering). But it of eliterature), the imp on of results. At the MZ ngineering). But it of eliterature), the imp on of results. At the Z nent will present sin Z,ZK as well as diferent y examples like the s of mechanics. The Z,ZK d classical field the magnetic radiation i Z,ZK d classical field the magnetic radiation i Z,ZK ic principle, ideal at tribution,equipartitit i ensemble, Fermi of Z,ZK ation, interference, oglie waves, the Sch ZK	can be also dementation e same time 6 can be also dementation e same time 2 nple tasks 4 approaches e two-body e subject is 4 ory in the n the dipole 4 nd real gas, on theorem. 4 ical entropy. gas, models 6 diffraction, nrodinger 2 students of
Lecture is intended attended by student of the measuremer 02PRA2 Lecture is intended attended by student of the measuremer 02SMF The purpose of th 02TEF1 The course is an int to description of c problem, the moti 02TEF2 Tensors and tran Minkowski space-ti 02TER Thermal expansior entropy; non-chemi 02TSFA Foundation of therm Basics of many boo 02VOAF Wave phenomena coherence. Geor 02ZM1 The lecture is desig other branches Ti	If especially for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E is interested in the otherspecializations. In Experimental aboratory students learn how to prepare for experiments (including work with th the aspecializations of FNSPE(branch Physical Engineering, Nuclear E aspeciality for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E aspeciality for students who intend to study some of the physical specializations of FNSPE(branch Physical Engineering, Nuclear E as interested in the otherspecializations. In Experimental laboratory students learn how to prepare for experiments (including work with the t (acquire of different experimental procedures and routines), willteach writing the records of measurement, processing and evaluation practically extendthe knowledge gained in lectures on physics.  Seminar of Mathematical Physics seminar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physics departm concerning their scientific activities that could become the topics of the student?s bachelor theses in the next year Theoretical Physics 1 Theoretical Physics 2 Theoretical Physics 2 stormations, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on elementar on of a system of constrained masp, rigid body and continuum. The special theory of relativity: relativistic mechanics an me. Classical electrodynamics: Maxwell's equations in the Ninkowski space-time, electromagnetic waves in dielectric media, electror approximation. Heat and Molecular Physics of materials, heat transfer; stationary and non-stationary heat conduction, heat transfer and penetration; 1st and 2nd thermodynam cal systems: dielectric and magnetic materials; Maxwell realions and thermodynamic potentials; kinetic theory: Maxwell's velocity dis of crystals and the black body radiation). The Boltzmann equation is usedt	ngineering). But it of reliterature), the imp on of results. At the Mission of results. At the ineliterature), the imp on of results. At the ment will present sin Z,ZK as well as diferent y examples like the of mechanics. The d classical field the magnetic radiation i Z,ZK d classical field the magnetic radiation i Z,ZK d classical field the magnetic radiation i Z,ZK is principle, ideal at tribution, equipartitic Z,ZK is ensemble, Fermi of Z,ZK ation, interference, oglie waves, the Sch can be attended by a on a PC. Student	can be also dementation e same time 6 can be also dementation e same time 2 nple tasks 4 approaches t two-body e subject is 4 ory in the n the dipole 4 nd real gas, on theorem. 4 ical entropy. gas, models 6 diffraction, nrodinger 2 students of s learn the

02ZM2	Foundations of Physical Measurements 2	KZ	4
The lecture is desi	gned for students of physical specializations (Experimental particle physics, Physical engineering, Nuclear engineering), however, it (	an be attended by	students of
other branches. T	he goal of the lecture is to introduce the basics of physical measurements, the methods of processing and evaluation of acquired dat	a on a PC. Students	s learn the
0.441/0	basic habits of work in a physics lab.	7	4
	English Conversation	Z	l I develop
their vocabulary fo	precipiting student's communication skills acquired throughout their previous studies. It aims to improve an aspects of oral communica-	to better follow and	narticipate
in d	liscussions. The student will be trained to express their ideas clearly and according to current English usage, and become a more con	fident speaker.	participate
04XAM1	English for Intermediate Students M1	Z	2
The course is desig	gned for students who have successfully completed the full secondary school English language course at least at the A2 level of the C	Common European	Framework
of Reference for La	anguages (CEFR). It provides an introduction into English for Specific and Academic Purposes (ESP, EAP), i.e., into fundamentals of	vocabulary and sty	le typical of
professional oral a	and written communication situations. Thus it covers topics related to the student's life and needs as well as topics of subtechnical int	erest. Attention is a	also paid to
	extending the knowledge of grammar issues used in EAP.		
04XAM2	English for Intermediate Students M2	<u> </u>	2
The AM2 course	expects the student to have completed the AM1 course. It develops their skills for work with subtechnical texts, focusing also more of picel of ESP and EAP (a.g., definition, existence and classification of phonomena, chiect descriptions). Part of the course is also guided	specific grammar,	functions,
and lexical items ty	revision is included	writing. If hecessar	y, grannai
04XAM3	English for Intermediate Students M3	7	2
The course develo	bs the skills that enable students to cope with features typical of professional style. Increasing attention is paid to developing subtechnic	al vocabulary and ir	ndependent
understanding of	f professional texts. Great emphasis is placed on distinguishing different levels of formal and informal oral and written communication	and their appropria	te Czech
equivalents. The co	purse also includes studying abstracts and rules for writing them as well as basic rules for preparing and giving a short presentation c	n a chosen topic re	elated to the
	student's field.		
04XAMZK	English for Intermediate Students Examination	ZK	4
The course cont	ent is the examination as given by the study plan. The examination covers the AM1, AM2, and AM3 courses and consists of two parts	s - written (100 min)	) and oral
	So min). The student is expected to master the Aivi syllabus and demonstrate the ability to apply their knowledge gained in the three I		
	EIIGIISTI IOF AUVAICED STUDENTS M1		Z
of Reference for	I anguages - CEER) It provides an introduction into English for Specific and Academic Purposes (ESP EAP) i.e. into the fundament	tals of vocabulary f	functions
grammar, and sty	le typical of professional oral and written communication situations (fundamentals of terms in mathematics and physics, definitions, g	raph descriptions, e	etc). It also
covers professiona	l oral and written communication on topics related to the undergraduate's life and needs. It develops skills for free professional writing (w	riting a CV, letter of	application,
	polite request). If necessary, revision of selected grammar topics is included.		
04XAP2	English for Advanced Students P2	Z	2
The AP2 course is	based on AP1, thus extending the student's skills for working with subtechnical texts, and even with professional texts of chosen bra	nches of science. A	according to
the students' need	Is it concentrates on chosen grammar topics, but mainly intends to develop understanding of syntactic structures and typical rhetorica	Il functions (e.g., va	arious types
of descriptions, an	id, if possible, a case study). Increasing emphasis is placed on the undergraduate's independent work with and reading of linguistical as the student's subtenended strategies of a size of the formation of the student's subtenended as formations of a size of the student's subtenended as formations of a size of the student's subtenended as formations of a size of the student's subtenended as formations of a size of the student's subtenended as formations of the student's subtenended	ly more demanding	g materials.
The course extend	s the student's subtechnical vocabulary, and includes fundamental notions of chosen branches of science. It is focused on formal writ	ing including the se	entence and
048483	English for Advanced Students P3	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 in	cludes training oral	and written
communication sk	tills and functions (e.g., expressing an opinion, agreement, and objections; taking part in discussion, note-taking; summarizing, writing	y an abstract) and,	if possible,
also preparing a	project on a given or chosen topic and presenting it. The course places emphasis on distinguishing levels of formal and informal lang	uage both in oral ar	nd written
	communication.	TT	
04XAPZK	English for Advanced Students Examination	ZK	4
The course conten	t is the examination as given by the study plan. The student is supposed to demonstrate mastering the AP3 syllabus and the ability to a	apply their knowledg	ge obtained
	Courses. The examination consists of 2 parts - whiten (100 min) and oral (30 min) and includes also oral presentation of a topic from		
	UZECN TOF FOREIGNERS - INTERMEDIATE 'I	∣ ∠ ∣ tudopt´s vocabulari	Z
	social situations	iddeni s vocabulary	
04XCESM2	Czech for Foreigners - Intermediate 2	7	2
The course develo	bps the topics covered in CESM1 and is then focused on more difficult grammar phenomena. It practices writing, speaking, and readi	ng skills and trains t	the student
	in understanding common abbreviations, abbreviated words, and mathematical terms and formulas.	0	
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 especi	ally focused on styli	istics and
	lexicology and on developing the student's writing skills.		
04XCESMZK	Czech for Intermediate Students Examination	ZK	4
The course conte	nt is the examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the CES	M1,2,3 courses an	id can only
	be taken after successful completion of the 3 courses. Detailed information is to be obtained from the teacher.		
04XCESP1	Uzech for Foreign Students - Advanced 1	Z	2 Reference
It is focused partly	and overse is very good knowledge of the ozech language, i.e., communicative completences at least at level by of the Common Euro	ence Students are	taught the
basics of function	nal style of engineering and professional communication, both in spoken and written form. The topics include University Studies and	Student Life. Writter	n practice
	includes communication with teachers and faculty administrators.		
04XCESP2	Czech for Foreigners - Advanced 2	Z	2
This course extend	Is the student's knowledge acquired in CESP1 and focuses on difficult language phenomena. It practises working with technical and	specialist texts plac	cing greater
	emphasis on individual work.		
04XCESP3	Czech for Foreigners - Advanced 3	Z	2
The course develo	ps the student's knowledge from CESP2. It includes working with authentic specialist materials, their interpretation and presentation,	and, finally, present	tation of the
	student's project. Writing skills necessary for professional communication are trained.		
04XCESPZK	Czech tor Foreign Students - Advanced Examination	ZK	4
i ne course conte	nt is the examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the CES	P1,2,3 courses and	a can only
L	שי נמגידו מוניד שנטבישונו ניווידי ניווידי ניטוושיש. שינמופע ווויטווומנוטו וא נס פט טעמוופע וויטוו נופ teacher.		

04XCESZ1	Czech for Foreigners - Beginners 1	Z	2
The course is desig	ned for students of the English programme. Students will become acquainted with the main characteristics of Czech (phonetic and g	rammar features) a	and they will
acquire basic langu	lage and speaking skills. The course focuses on pronunciation exercises, simple social phrases, and oral and written communication	in the most commo	on everyday
04205070	situations. The course covers roughly lessons 1-3 of estina Express (Czech Express) by L. Hola and P. Bo llova.		0
	UZECN TOF FOREIGNERS - Beginners 2	L Z	Z d proctico
The language and	basic communication topics. The course covers roughly lessons 3-5 in Czech Express by L. Holá and P. Bo ilová	ijugation system a	no practise
04XCESZ3	Czech for Eoreigners - Beginners 3	7	2
The course furthe	r develops the language and communication competences acquired in the XCESZ1 and XCESZ2 courses. The teaching focuses on	building up basic v	ocabulary,
fixing correct pronu	nciation and deepening grammar, features through practice, as well as introducing the Czech culture. Students are asked to produce	simple texts and th	hey practise
frequent types of di	alogue. 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 e	ština expres
	1.		
04XCESZZK	Czech for Foreigners Beginners - Examination	ZK	4
The course conte	nt is the examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the U4X	CESZ1,2,3 course	es and can
04XEM1	French for Intermediate Students M1	7	2
French - intermedia	ate FM The objective of this three-semester course is to improve and further develop communication in the French language in both y	←   written and oral for	∣ ∠ m Students
will be able to co	mmunicate in social interaction and in academic, scientific and professional environment. They will be able to use the language to tra	insmit general and	technical
information and to	solve problems. FM1 The course builds on and further develops linguistic competence acquired at secondary school. It revises, syste	emizes and expand	ls language
skills gained in prev	rious study. The following topics are covered: University studies in our country and in France, writing of transactional letters, CV, persor	nal statement, requ	iest, answer
to an advert,	French culture and geography, Paris. Topics of specialization: mathematics, physics. Reading technical and popular science texts, wo	ork based on these	texts.
04XFM2	French for Intermediate Students M2	Z	2
Course FM2 builds	on FM1. Linguistic structures and competence acquired in previous study are systemized and expanded. Reading popular science text	is, features typical l	for technical
and scientific lan	guage (passives, nominalization, word formation). Topics: physics, power engineering, environment, internet, success of French scie	nce and technolog	y, French
	Franch for Intermediate Studente M2	7	2
The course is focus	ed on improvement and further development of linguistic competence acquired during the follow-up courses. Syntactic structures (sub	ordinate and infinit	ive clauses
participle structur	es, compound tenses). Text summaryStudents prepare a written paper which will be delivered in form of an oral presentation in-cla	ss. The paper is lin	ked to the
field of students' fu	ture specialisation or to their interest and generally covers a technical /applied science topic. It is not a translation but a creative work	compiled from Fre	ench articles
and one	s's own knowledge/experience Longer monologues on topics /situations set for the examination are prepared. Text structure, cohesi	on and coherence.	
04XFMZK	French for Intermediate Students Examination	ZK	4
The content is the	examination as given by the study programme. The whole French programme is ended with an examination covering the contents o	f FM1-FM3. The ex	kamination
	consists of a written and oral part and is organized according to Examination Instructions, a document available on the well	). 	
04XFP1	French for Advanced Students P1		2
he able to commun	se The objective of this three-semester course is to improve and further develop communication in the French language in both writte icate in social interaction and in academic, scientific and work environment. They will be able to use the language to transmit general	and technical info	tudents will
to solve problems.	EP1 The course builds on and further develops linguistic competence acquired at secondary school. Difficult grammar topics are repe	ated and expanded	d: subionctif.
passé composé-im	parfait, pronouns. The following specific topics are covered: University studies in our country and in France, writing of transactional le	etters, CV, personal	l statement,
request, answer to	an advert, environmental issues, success of French science and technology, chosen topics from French regional culture, Paris. Topics	of specialization: m	athematics,
	internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation	1.	-
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 g	iven topics. Feature	es typical of
0.0X5D0	technical and scientific communication are stressed (passive voice, nominalization, word formation).		
	French for Advanded Students P3		2
skill - translation of	ed on systemization and improvement of acquired linguistic competence, skills and knowledge, and their use for communication in english cover a paper and making oral presentation in-class. The paper generally cover is shown as the paper generally cover in the second statement of a paper generally cover in the second statement of a paper generally cover in the second statement of a paper generally cover in the second statement of a paper generally cover in the second statement of a paper generally cover in the second statement of a paper generally cover in the second statement of a paper general statement of a paper	Jineering environm	ient. Special
Skiil - translation o	topic. It is a creative work compiled from 3 French sources. Preparation of several set topics for oral examination.	s a teorinical /appli	ieu science
04XFP7K	French for Advanced Students Examination	7K	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 a	and is organized ac	ccording to
	Examination Instructions, a document available on the web. Assessment of the presentation is included into the examination gra	ading.	
04XFZ1	French for Beginners Z1	Z	2
French for beginner	rs The objective of this 5-level course is to be able to communicate in French orally and in writing in situations of everyday life, in soci	alizing and in profe	essional life.
The course include	es French for specific / technical communication and reading of popular science and scientific texts. FZ1 The objective is to be able to	communicate at e	elementary
level, actively u	ising the knowledge of chosen elementary language. The contents is roughly outlined by lessons 1 - 7 of the textbook Pravda - Pr	lová, French for be	ginners
diving the c	za are ky). It is extended with studious of communication and functions from the textbook Espaces 1, lessons 1-4. Infloductions, pe	nciation and dram	, asking anu mar
	French for Beginners 72	7	2
The course is linkir	o 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 Begin	ners . Additional topics and skills are filled in from the textbook Espaces I, lesson 1 - 5 (introductions, invitation, welcoming, agreeme	ent - disagreement,	apology,
thanking, travelling,	map of France, food, expression of will, wish, order, prohibition, pleasure). Correct pronunciation is practiced. Stress on oral communic	cation. Specific top	ics 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 - Pra	vdová: French for l	Beginners.
iopics, functions	and situations are complemented from other materials. Stress is put on oral communication in dialogues and on reading, both for inference to the pronunciation practice. Reading covers short adapted texts of general interest first, and later popular science texts.	Simation and loud	as part of
048574	Franch for Radinare 7/	7	2
The course builds	up on FZ3. Basic linguistic knowledge and skills are further developed. Oral communication and reading skills are practiced. The corr	tents is roughly or	vered with
lessons 19 - 23 of th	te textbook French for Beginners, and is expanded with topics and functions from other materials. Reading is developed from the lecture	e 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, shopp	ing, weather, unive	ersity in our
	country and in France, how to write CV, application, topics in mathematics, reading physics - mechanics, informatics, internet	et.	

04XFZ5	French for Beginners Z5	Z	2
All four skills acqu	red in FZ4 are further developed, as well as technical language. Students prepare a paper on a chosen popular science topic. They prevent of the prevention of the state of th	esent 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. To	pics: on physics from	m lecture
notes, success	of French science and technology, information about France. Grammar is systemized and complemented with syntax (subordinate cla	auses, typical conju	nctions,
0.4)/5771/	subjunctive clauses, gerund, passive.	71/	
	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 examin	ation is ruled by the	document
	Cormon for Intermediate Studente M1	7	2
U4AINIVI I	German language The course is to level off the students' skills in the German language. The course focuses on revision of more difficult phenomena and st	L C C C C C C C C C C C C C C C C C C C	∠ bne (evize
word formatio	n processes (e.g. importance of verb prefixes). In the lexical part, it covers topics referring to higher education in both the Czech Repu	blic and Germany.	current
environmental is	sues together with all necessary expressions and phrases, expressions and phrases needed to chemists, mathematicians, physicists	, and the fundamen	tals of IT
	terminology. It develops communication on related topics and is aimed at correct pronunciation, grammatical correctness and unders	tandability.	
04XNM2	German for Intermediate Students M2	Z	2
The course introdu	ices other more complex grammatical structures and their application in communication based on technical texts, such as the relation be	tween technology a	ind 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 fo	r information and reading aloud, and appropriate language for various purposes in oral and written communication. The course systemati	cally revises other g	rammatical
	phenomena important for professional discourse (participles, relative clauses).		
04XNM3	German for Intermediate Students M3	Z	2
The course introdu	ices other more complex grammatical structures and their application in communication based on technical texts, such as the relation be	tween technology a	ind 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 fo	r information and reading aloud, and appropriate language for various purposes in oral and written communication. The course systemati	cally revises other g	rammatical
	Correspondent for Internet of Students Exercised for	71/	4
	German for Intermediate Students Examination	ZK	4
and oral, which or	it is the examination as given by the study plan. The whole German for intermediate Students Course is completed by an examination of example the courses NM1. NM2. The oral part follows after passing the written part successfully and after obtaining the 04NM2 assessment.	consisting of two par	ts - written
and oral, which o	is to be obtained from the teacher		normation
	German for Advanced Students P1	7	2
This course requi	res good grammar knowledge, extended general vocabulary, and good communication skills acquired at secondary school to be level	led off at the beginn	$\frac{2}{1}$
course. The cour	se is then focused on working with technical and scientific texts and practising reading techniques (skimming, scanning, reading for d	etail). It revises and	develops
more difficult gram	mar structures necessary for understanding a subtechnical text (passive voice, participles, participle structures) and it also focuses on pravil	ctical everyday comr	nunication,
Ū	i.e., telephoning.		
04XNP2	German for Advanced Students P2	Z	2
The course develo	ps the students' skills in working with professional scientific texts (understanding, summarising, note-taking, interpreting) while extending	their general and su	ubtechnical
vocabulary range.	It introduces mathematical expressions and texts of nuclear power engineering. Increasing emphasis is placed on understanding and pra	actising formal comm	nunication,
t	both written and oral (CV, letter of application, interview, scholarship), and more complex grammatical structures (i.e., subjunctive, indi	rect speech).	
04XNP3	German for Advanced Students P3	Z	2
The course consi	sts of 3 main parts (general communicative situations, grammar and technical topics). Students will develop their vocabulary in a varie	ety of less common	situations
(traffic problems a	ind car accidents, accident report, filling in a form, complaints). Based on presentations and technical and subtechnical texts, the voca	bulary range in field	ds such as
nuclear power ei	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	to process information gained from their reading of complex and difficult texts and present it to the class in a simplified oral form. The c	ourse also includes	translation
	Cormon for Advanced Students Examination	71/	1
The course conte	DEITIALI IOL AUVALICEU SILUEITIS EXALLIMATION t is the examination as given by the study plan. The whole German for Advanced Students Course is completed by an examination of	∠r\ onsisting of two par	ts - written
and oral, which	cover the courses NP1 - NP3. The oral part follows after passing the written part successfully and after obtaining the 04NP3 ungraded	assessment. More	detailed
,,	information is to be obtained from the teacher.		
04XRM1	Russian for Intermediate Students M1	7	2
The course is desi	gned for students with previous knowledge of Russian from secondary schools. Students are supposed to know the Russian alphabet (	both printed and ha	ndwritten).
basic vocabulary f	or communication in everyday situations (introductions, socializing, greetings, shopping for food and objects of everyday need, asking	the way and giving o	directions),
they can use ba	sic grammar structures (verbal and nominal forms, irregular verbs, pronouns). The initial knowledge corresponds to the achievement l	evel of the RZ2 cou	irse. The
	contents and scope of the course correspond approximately to the RZ3 course, but for half of the time allotted in the timetab	le.	
04XRM2	Russian for Intermediate Students M2	Z	2
	The course is based on the RM1 course, its contents and scope correspond roughly to RZ4, however, for half of the time allotted in the	e timetable.	
04XRM3	Russian for Intermediate Students M3	Z	2
The course develo	is the knowledge and skills acquired in RM1 and RM2 and its contents and scope are roughly at the same level as those of RZ5, howe	ver, for half of the ti	me allotted
	in the timetable.		
04XRMZK	Russian for Intermediate Students Examination	ZK	4
The course conte	nt is the examination as given by the study plan. The course is completed by taking a written and oral examination testing the knowled	ge and skills acquir	ed in RM1
- RM3. Stu	dents are eligible for the oral examination only after a prior pass in RM3 and a successful written examination. Students are given inst	ructions by the teac	her.
04XRP1		_	2
The entrance rec	Russian for Advanced Students P1	Z	
	Russian for Advanced Students P1 quirement for the course is to achieve the B1 CEFR level. The objective of the course is revision of standard language structures, prace	Z   ticing more difficult	grammar
0.01/0.00	Russian for Advanced Students P1 quirement 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.	Z ticing more difficult	grammar
04XRP2	Russian for Advanced Students P1 quirement 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. Russian for Advanced Students P2	Z ticing more difficult	grammar 2
04XRP2 The course is ba	Russian for Advanced Students P1 quirement 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. Russian for Advanced Students P2 sed on RP1. It expands grammatical structures important for understanding technical texts (verbal adjectives, participles, passives, ve	Z ticing more difficult Z rb aspects, specific	grammar 2 syntactic
04XRP2 The course is ba	Russian for Advanced Students P1 quirement for the course is to achieve the B1 CEFR level. The objective of the course is revision of standard language structures, prace structures, understanding the fundamentals of technical language and training writing skills. Russian for Advanced Students P2 sed on RP1. It expands grammatical structures important for understanding technical texts (verbal adjectives, participles, passives, ve structures). Stress is put on independent oral and written communication.	Z ticing more difficult Z rb aspects, specific	grammar 2 syntactic
04XRP2 The course is ba 04XRP3	Russian for Advanced Students P1 quirement 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. Russian for Advanced Students P2 sed on RP1. It expands grammatical structures important for understanding technical texts (verbal adjectives, participles, passives, ve structures). Stress is put on independent oral and written communication. Russian for Advanced Students P3	Z ticing more difficult Z rb aspects, specific Z	grammar 2 syntactic 2
04XRP2 The course is bas 04XRP3 The course is bas	Russian for Advanced Students P1 quirement for the course is to achieve the B1 CEFR level. The objective of the course is revision of standard language structures, prace structures, understanding the fundamentals of technical language and training writing skills. Russian for Advanced Students P2 sed on RP1. It expands grammatical structures important for understanding technical texts (verbal adjectives, participles, passives, ver structures). Stress is put on independent oral and written communication. Russian for Advanced Students P3 red on RP2 and is mainly focused on working with technical and scientific texts (reading comprehension, oral and written paraphrasing prod previous knowledge of general language at secondary level (listening, reading, correct communication in overvious cituations).	Z ticing more difficult Z rb aspects, specific Z g, translation). The F	grammar 2 syntactic 2 RP1 - RP3
04XRP2 The course is bas 04XRP3 The course is bas courses require go these skills Furth	Russian for Advanced Students P1 quirement for the course is to achieve the B1 CEFR level. The objective of the course is revision of standard language structures, prace structures, understanding the fundamentals of technical language and training writing skills. Russian for Advanced Students P2 sed on RP1. It expands grammatical structures important for understanding technical texts (verbal adjectives, participles, passives, ver structures). Stress is put on independent oral and written communication. Russian for Advanced Students P3 sed on RP2 and is mainly focused on working with technical and scientific texts (reading comprehension, oral and written paraphrasing bod 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' energialization, oral and writen oral and writen or and writen or and writen or and writen be students' energialization, oral and writen or and writen be students' energialization, oral and writen or and wr	Z ticing more difficult Z rb aspects, specific Z g, translation). The F e courses develop a itten interpretation)	grammar 2 syntactic 2 RP1 - RP3 ind expand . Students
04XRP2 The course is bas 04XRP3 The course is bas courses require go these skills. Furth develop their subto	Russian for Advanced Students P1           quirement for the course is to achieve the B1 CEFR level. The objective of the course is revision of standard language structures, prace structures, understanding the fundamentals of technical language and training writing skills.           Russian for Advanced Students P2           sed on RP1. It expands grammatical structures important for understanding technical texts (verbal adjectives, participles, passives, vestructures). Stress is put on independent oral and written communication.           Russian for Advanced Students P3           sed on RP2 and is mainly focused on working with technical and scientific texts (reading comprehension, oral and written paraphrasing ood 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 written communication in everyday situations). The er study is aimed at professional and technical skills (reading technical literature according to the students' specialization, oral and written communication in professional skills (reading technical literature according to the students' specialization, oral and written communication in professional situations. They will be able to both speak write according to the students' specialization, oral and written communication in professional situations. They will be able to both speak write according to the students' specialization, oral and written communication in professional situations. They will be able to both speak write according to the students' specialization, oral and written communication in professional situations. They will be able to both speak write according to the students' specialization, oral and written comm	Z ticing more difficult Z rb aspects, specific Z g, translation). The F e courses develop a ritten interpretation) urately and with con	grammar 2 syntactic 2 RP1 - RP3 ind expand . Students ifidence on
04XRP2 The course is bas 04XRP3 The course is bas courses require go these skills. Furth develop their subt	Russian for Advanced Students P1           quirement for the course is to achieve the B1 CEFR level. The objective of the course is revision of standard language structures, prace structures, understanding the fundamentals of technical language and training writing skills.           Russian for Advanced Students P2           sed on RP1. It expands grammatical structures important for understanding technical texts (verbal adjectives, participles, passives, ve structures). Stress is put on independent oral and written communication.           Russian for Advanced Students P3           eed on RP2 and is mainly focused on working with technical and scientific texts (reading comprehension, oral and written paraphrasing ood 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 write according	Z ticing more difficult Z rb aspects, specific Z g, translation). The F e courses develop a ritten interpretation) urately and with con	grammar 2 syntactic 2 RP1 - RP3 ind expand . Students ifidence on

04XRPZK	Russian for Advanced Students Examination	ZK	4
The course conter	nt is the examination as given by the study plan. The course is completed by taking a written and oral examination testing the knowled	ge and skills acqui	ired in RP1
- RP3. Stud	lents are eligible for the oral examination only after a prior pass in RP3 and a successful written examination. Students are given instr	ructions by the tead	cher.
04XRZ1	Russian for Beginners Z1	Z	2
The course represe	ents the first stage of the five-semester programme, its final aim being reading and understanding professional texts written in Russian	. Thus it begins with	h mastering
the Russian alpha	a short text with marked stress understand its contents and summarize it	). Students will be a	
04XR72	Russian for Beginners 72	7	2
The second semes	ster of the programme is designed to teach skills for basic communication in everyday situations and for reading easy and short subte	echnical texts. Stud	ents will be
able to communica	te using short sentences and appropriate structures, and read aloud with confidence a short text without marked stress. They will also	o develop their voc	abulary and
	master further grammatical structures. They will have mastered with confidence the Russian alphabet and will be able to use it in	writing.	
04XRZ3	Russian for Beginners Z3	Z	2
The course is base	d on RZ2 and includes further everyday topics, develops understanding of short compact texts on new subtechnical topics (for training	various forms of re	eading skills
and listening) an	d introduces new grammar. Students will be trained to distinguish intonation patterns while listening to spoken language. They will be	able to respond so	o as to be
	understood, and to express their opinion. Writing skills will be trained on guided writing tasks and note-taking.		-
04XRZ4	Russian for Beginners Z4	<u> </u>	2
I ne course is base	a on R23. It improves and expands the knowledge of general language in all four skills (reading and understanding longer texts with a conjugation in every day situations, writing longer texts). Students are trained to use grammar structures offectively (e.g., irregular verbs)	ertain percentage of differences in ver	b pattorns
from Czech mo	dality imperatives conditionals) They practice and develop communication skills for everyday situations (food travelling free time) a	and practice oral an	d written
communication c	on more specific topics (environment, addictions, the green movement). They become acquainted with various geographical data (e.g.	., Siberia), learn ho	w to fill in
	forms, look up the information from the timetable, learn about Russian holidays and typical meals.	, ,,	
04XRZ5	Russian for Beginners Z5	Z	2
The course expects	s the student to have completed RZ4. It concentrates predominantly on reading skills (working with professional texts, i.e. understandir	ig, extracting and s	ummarizing
information from a	specialized text) and speaking, and to a certain extent, writing about the professional information obtained by reading the texts. Comr	nunication skills are	e trained on
everyday topics. S	Studying grammar is based on professional and technical texts and only includes items typically used in professional communication (	verbal adjectives, p	participles,
passiv	ve voice). Students develop their technical and economic vocabulary, and are also trained in some professional skills (writing a CV, po	blite request, etc.)	
04XRZZK	Russian for Beginners Examination	ZK	3
R75 Stud	nt is the examination as given by the study plan. The course is completed by taking a written and oral examination testing the knowled lents are eligible for the oral examination. Students are given instruction testing the knowled instruction of the students are given instructions and oral examination.	ige and skills acqu	ired in RZ1
0425.000	Spanich for Intermediate Students M1		יופו. ס
	signed for students whose competence is at level B1 of CEER is a those who studied Spanish in the secondary school. The 3-semesi	ter course develops	∠ s standard
vocabulary and p	avs attention to further grammar topics (e.g., perifrasis verbales, futuro imperfecto, direct object and indirect object pronouns, negative	e form of the impe	rative, and
subjunctive	), to written and oral communication on a given everyday or easy subtechnical topic, for which the students are trained by reading tex	ts or listening to th	iem.
04XSM2	Spanish for Intermediate Students M3	Z	2
The course develo	ops the students' knowledge from the previous course (SM1). Students are gradually acquainted with fundamentals of Spanish for sp	ecific purposes in	order to be
	able to work with specialized texts on the Internet.		
04XSM3	able to work with specialized texts on the Internet. Spanish for Intermediate Students M3	Z	2
04XSM3 The course books a	able to work with specialized texts on the Internet. Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi	Z c style. They will be	2 e competent
04XSM3 The course books a enough to use the	able to work with specialized texts on the Internet.  Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write sho	Z c style. They will be rt articles and summ	2 e competent maries. The
04XSM3 The course books a enough to use the	able to work with specialized texts on the Internet.  Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write shou final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral ex	Z ic style. They will be rt articles and sumi amination.	2 e competent maries. The
04XSM3 The course books a enough to use the 04XSMZK The course cont	able to work with specialized texts on the Internet.  Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi 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 ex Spanish for Intermediate Students Examination usert is the examination as given by the study plan, XSMZK examination consists of two parts; written and oral; to be eligible for the write the examination of the study plan, XSMZK examination consists of two parts; written and oral; to be eligible for the write the evamination of the study plan, XSMZK examination consists of two parts; written and oral; to be eligible for the write the evamination of the study plan, XSMZK examination consists of two parts; written and oral; to be eligible for the write the study plan to	Z c style. They will be rt articles and sum amination. ZK itten part_students	2 e competent maries. The 4 will have
04XSM3 The course books a enough to use the 04XSMZK The course cont	able to work with specialized texts on the Internet.  Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write shou final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral ex Spanish for Intermediate Students Examination ent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part.	Z ic style. They will be rt articles and sum amination. ZK itten part, students	2 e competent maries. The 4 will have
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1	able to work with specialized texts on the Internet.  Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write shou final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral ex Spanish for Intermediate Students Examination uent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part. Spanish for Advanced Students P1	Z ic style. They will be rt articles and sum amination. ZK itten part, students	2 e competent maries. The 4 will have 2
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate	able to work with specialized texts on the Internet. Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi 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 ex Spanish for Intermediate Students Examination ent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part. Spanish for Advanced Students P1 es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication.	Z c style. They will be rt articles and sum amination. ZK itten part, students Z Course prerequisit	2 e competent maries. The 4 will have 2 ess: level B2
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate	able to work with specialized texts on the Internet. Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi 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 ex Spanish for Intermediate Students Examination Examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part. Spanish for Advanced Students P1 es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR.	Z c style. They will be rt articles and sum amination. ZK itten part, students Z Course prerequisit	2 e competent maries. The 4 will have 2 tes: level B2
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2	able to work with specialized texts on the Internet. Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi 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 ex Spanish for Intermediate Students Examination tent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part. Spanish for Advanced Students P1 es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR. Spanish for Advanced Students P2	Z c style. They will be rt articles and sum amination. ZK itten part, students Z Course prerequisit	2 e competent maries. The 4 will have 2 ees: level B2 2
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the	able to work with specialized texts on the Internet. Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi 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 ex Spanish for Intermediate Students Examination tent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part. Spanish for Advanced Students P1 es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR. Spanish for Advanced Students P2 e second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synta	Z c style. They will be rt articles and sumr amination. ZK itten part, students Z Course prerequisit Z and focuses on in	2 e competent maries. The 4 will have 2 tes: level B2 2 ndependent
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the	able to work with specialized texts on the Internet. Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write shou final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral ex Spanish for Intermediate Students Examination tent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part. Spanish for Advanced Students P1 es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR. spanish for Advanced Students P2 e second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synta written communication.	Z c style. They will be rt articles and sum amination. ZK itten part, students Course prerequisit Z ux and focuses on it	2 e competent maries. The 4 will have 2 tes: level B2 2 ndependent
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3	able to work with specialized texts on the Internet. Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write shou final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral ex Spanish for Intermediate Students Examination tent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part. Spanish for Advanced Students P1 es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR. Spanish for Advanced Students P2 e second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synta written communication. Spanish for Advanced Students P3	Z ic style. They will be rt articles and summa mination. ZK itten part, students Course prerequisit Z ux and focuses on in Z	2 e competent maries. The 4 will have 2 tes: level B2 2 ndependent 2
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3 Course XSP3 is the	able to work with specialized texts on the Internet. Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write shou final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral ex Spanish for Intermediate Students Examination uent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part. Spanish for Advanced Students P1 es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR. spanish for Advanced Students P2 e second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synta written communication. for the advanced Spanish course. It is based on texts chosen by the students P3 e final part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is focu	Z       ic style. They will be rt articles and summaniation.       ZK       itten part, students       Course prerequisit       Z       x and focuses on in       Z       used on written corr	2 e competent maries. The 4 will have 2 tes: level B2 2 ndependent 2 nunication
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3 Course XSP3 is the	able to work with specialized texts on the Internet. Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write shou final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral ex Spanish for Intermediate Students Examination ent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part. Spanish for Advanced Students P1 es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR. Spanish for Advanced Students P2 e second part of the advanced Spanish course, extending Spanish for Advanced Students P3 e final part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is focu based on what students will need in their career.	Z ic style. They will be rt articles and summa mination. ZK itten part, students Course prerequisit Z course prerequisit Z ux and focuses on in Z used on written corr	2 e competent maries. The 4 will have 2 tes: level B2 2 ndependent 2 nunication
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3 Course XSP3 is the 04XSP2K	able to work with specialized texts on the Internet. Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi 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 ex Spanish for Intermediate Students Examination tent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part. Spanish for Advanced Students P1 es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR. Spanish for Advanced Students P2 e second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synta written communication. Spanish for Advanced Students P3 e final part of the advanced Spanish course. It is based on texts chosen by the students P3 e final part of the advanced Spanish for Advanced Students P3 e tight advanced Spanish for Advanced Students Examination based on what students will need in their career. Spanish for Advanced Students Examination e to the advanced Spanish for Advanced Students Examination based on what students Examination based on what students Examination based on what students Examination based o	Z ic style. They will be rt articles and sum amination. ZK itten part, students Course prerequisit Z course prerequisit z and focuses on in Z used on written corr ZK	2 e competent maries. The 4 will have 2 etes: level B2 2 ndependent 2 nmunication 4
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3 Course XSP3 is the 04XSP2K The course content basis	able to work with specialized texts on the Internet. Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi 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 ex Spanish for Intermediate Students Examination tent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part. Spanish for Advanced Students P1 es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR. Spanish for Advanced Students P2 e second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synta written communication. Spanish for Advanced Students P3 e final part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is focu based on what students will need in their career. Spanish for Advanced Students P3 e tinal part of the advanced Spanish for Advanced Students P3 e tinal 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. Spanish for Advanced Students P3 ent is the examination as given by the study plan. Examination XSPZK consists of two parts, namely oral and written. The prerequisite in passed the written test. Examination Content is hased on systex on systex of two parts, namely oral and written. The prerequisite in passed the written test. Examination content is hased on systex on systex of two parts, namely	Z       ic style. They will be rt articles and summaniation.       ZK       itten part, students       Z       Course prerequisit       Z       ux and focuses on in       Jused on written corr       ZK       e for admission to conduct to the student	2 e competent maries. The 4 will have 2 ess: level B2 2 ndependent 2 nmunication 4 oral part is
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3 Course XSP3 is the 04XSP2K The course content havit 04XS71	able to work with specialized texts on the Internet. Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi 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 for Intermediate Students Examination tent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part. Spanish for Advanced Students P1 es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR. Spanish for Advanced Students P2 e second part of the advanced Spanish course, extending Spanish for Advanced Students P3 e final part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is for based on what students will need in their career. Spanish for Advanced Students P3 e time texamination as given by the study plan. Examination XSPZK consists of two parts, namely oral and written. The prerequisite ing passed the written test. Examination content is based on syllabi of courses XSP1, XSP2, and XSP3 or on an individual study plan Spanish for Reginners Z1	Z ic style. They will be rt articles and summaniation. ZK itten part, students Z Course prerequisit Z used on written com F of the student. Z of the student. Z	2 e competent maries. The 4 will have 2 tes: level B2 2 ndependent 2 nmunication 4 oral part is
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3 Course XSP3 is the 04XSPZK The course content havi 04XSZ1 Course XSZ1 is the	able to work with specialized texts on the Internet.         Spanish for Intermediate Students M3         are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi         Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write shouting final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral expension of the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr         spanish for Intermediate Students Examination         tent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr         obtained non-graded assessment for course XSM3. Oral examination follows the written part.         Spanish for Advanced Students P1         es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication.         of CEFR.         e second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synta written communication.         spanish for Advanced Students P3         e final part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is for based on what students will need in their career.         Spanish for Advanced Students Examination         ent is the examination as given by the study plan. Exam	Z         ic style. They will be tarticles and summaniation.         ZK         itten part, students         Z         Course prerequisit         Z         ix and focuses on in         zsed on written corr         ZK         of the student.         Z         in of the student.         Z         in of the student.         Z         in of the student.	2 e competent maries. The 4 will have 2 ess: level B2 2 ndependent 2 nmunication 4 oral part is 2 uctures and
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3 Course XSP3 is the 04XSPZK The course conte havi 04XSZ1 Course XSZ1 is the will be able t	able to work with specialized texts on the Internet. Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi 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 ex Spanish for Intermediate Students Examination ent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part. Spanish for Advanced Students P1 es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR. spanish for Advanced Students P2 e second part of the advanced Spanish course, it is based on texts chosen by the students P3 e final part of the advanced Spanish course. It is based on texts chosen by the students P3 e final part of the advanced Spanish course. It is based on texts chosen by the students P3 e final part of the advanced Spanish for Advanced Students Examination ent is the examination as given by the study plan. Examination XSPZK consists of two parts, namely oral and written. The prerequisite ing passed the written test. Examination content is based on syllabi of courses XSP1, XSP2, and XSP3 or on an individual study plar pare if its stage of the five-semester programme of Spanish tor Beginners Z1 e first stage of the five-semester programme of Spanish studies; during the first stage the students will master phonetics and fundame to communicate at an elementary level on topics of everyday life. They will acquire and extend fundamental vocabulary of general Spanish	Z         ic style. They will be         ic style. They will be         it articles and summanination.         ZK         itten part, students         Z         Course prerequisit         X         Course prerequisit         X         Ised on written com         ZK         e for admission to com         on of the student.         Z         usental grammar strue         anish and will development	2 e competent maries. The 4 will have 2 tes: level B2 2 ndependent 2 nmunication 4 oral part is 2 uctures and lop it.
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3 Course XSP3 is the 04XSPZK The course content havi 04XSZ1 Course XSZ1 is the will be able to 04XSZ2	able to work with specialized texts on the Internet. Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academ Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write shot final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral ex Spanish for Intermediate Students Examination ent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part. Spanish for Advanced Students P1 es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR. e second part of the advanced Spanish course, extending Spanish for Advanced Students P2 e second part of the advanced Spanish course, extending Spanish for Advanced Students P3 e final part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is focu based on what students will need in their career. Spanish for Advanced Students Examination ent is the examination as given by the study plan. Examination XSPZK consists of two parts, namely oral and written. The prerequisite ing passed the written test. Examination content is based on syllabi of courses XSP1, XSP2, and XSP3 or on an individual study plan Spanish for Beginners Z1 e first stage of the five-semester programme of Spanish tor Beginners Z1 E to spanish for Beginners Z1 Spanish for Beginners Students Z2	Z         ic style. They will be         ic style. They will be         it articles and summation.         ZK         itten part, students         Z         Course prerequisit         Z         itten part, students         Z         issed on written corr         ZK         of of admission to condition of the student.         Z         issed on written corr         Z         in of the student.         Z         in of the student. <td>2 e competent maries. The 4 will have 2 tes: level B2 2 ndependent 2 nunication 4 oral part is 2 uctures and lop it. 2</td>	2 e competent maries. The 4 will have 2 tes: level B2 2 ndependent 2 nunication 4 oral part is 2 uctures and lop it. 2
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3 Course XSP3 is the 04XSPZK The course conte havi 04XSZ1 Course XSZ1 is th will be able t 04XSZ2 Course XSZ2 is b	able to work with specialized texts on the Internet. Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write sho final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral ex Spanish for Intermediate Students Examination ent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part. Spanish for Advanced Students P1 es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR. Spanish for Advanced Students P2 e second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synta written communication. Spanish for Advanced Students P3 e final part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synta written communication. Spanish for Advanced Students P3 e final part of the advanced Spanish course. It is based on texts chosen by the students will need in their career. Spanish for Advanced Students Examination ent is the examination as given by the study plan. Examination XSPZK consists of two parts, namely oral and written. The prerequisite ing passed the written test. Examination content is based on syllabi of courses XSP1, XSP2, and XSP3 or on an individual study plan e first stage of the five-semester programme of Spanish toring; during the first stage the students will master phonetics and fundam to communicate at an elementary level on topics of everyday life. They will acquire and extend fundamental vocabulary of general Spa ased	Z         ic style. They will be received and summation.         ZK         itten part, students         Z         Course prerequisit         Z         Course prerequisit         Z         used on written corr         ZK         e for admission to condition of the student.         Z         used and will develow         Z         anish and will be chosed	2 e competent maries. The 4 will have 2 tes: level B2 2 ndependent 2 nunication 4 oral part is 2 uctures and lop it. 2 en so as to
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3 Course XSP3 is the 04XSP2K The course conte havi 04XSZ1 Course XSZ1 is the will be able t 04XSZ2 Course XSZ2 is b enable them to ur	able to work with specialized texts on the Internet.         Spanish for Intermediate Students M3         are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write shot final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral ex Spanish for Intermediate Students Examination         ent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part.         Spanish for Advanced Students P1         es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR.         general part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synta written communication.         genal part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synta written communication.         Spanish for Advanced Students P3         e final part of the advanced Spanish course. It is based on texts chosen by the students will need in their career.         Spanish for Advanced Students Examination ant is the examination as given by the study plan. Examination XSPZK consists of two parts, namely oral and written. The prerequisite ing passed the written test. Examination con	Z         ic style. They will be it articles and summaniation.         ZK         itten part, students         Z         itten part, students         Z         Course prerequisit         Z         issed on written com         ZK         issed on written com         ZK         issed on written com         Z         issed on written com         ZK         issed on written com         Z         issentand will devel <td>2 e competent maries. The 4 will have 2 tes: level B2 2 ndependent 2 nunication 4 oral part is 2 uctures and lop it. 2 en so as to the Czech</td>	2 e competent maries. The 4 will have 2 tes: level B2 2 ndependent 2 nunication 4 oral part is 2 uctures and lop it. 2 en so as to the Czech
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3 Course XSP3 is the 04XSP3 Course XSP3 is the 04XSP2K The course content havit 04XSZ1 Course XSZ1 is the will be able to 04XSZ2 Course XSZ2 is b enable them to ur	able to work with specialized texts on the Internet.  Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write sho final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral ex Spanish for Intermediate Students Examination ent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part. Spanish for Advanced Students P1 es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR. Spanish for Advanced Students P2 e second part of the advanced Spanish course, extending Spanish for Specific purposes topics. It comprises more grammar and synta written communication. Spanish for Advanced Students P3 e final part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is focu based on what students will need in their career. Spanish for Advanced Students Examination ant is the examination as given by the study plan. Examination XSPZK consists of two parts, namely oral and written. The prerequisite ing passed the written test. Examination content is based on syllabi of courses XSP1, XSP2, and XSP3 or on an individual study plar Spanish for Beginners Z1 spanish for Beginners Z1 spanish for Beginners Students Z2 ased on course XSZ1, and expects students to develop and extend the knowledge and skills acquired so far. Grammar structures an inderstand short adapted written texts and speech. Attention is also paid to cultural differences between Spanish-speaking countries a Republic. Realia of Spanish-spe	Z ic style. They will be it articles and summaniation. ZK itten part, students Z Course prerequisit Z itten and focuses on in Z used on written com C itten student. Z itten admission to co of the student. Z	2 e competent maries. The 4 will have 2 etes: level B2 2 ndependent 2 nunication 4 oral part is 2 uctures and lop it. 2 en so as to the Czech
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3 Course XSP3 is the 04XSP3 Course XSP3 is the 04XSP3 Course XSZ1 is the will be able to 04XSZ2 Course XSZ2 is b enable them to ur	able to work with specialized texts on the Internet. Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write shoo final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral ex Spanish for Intermediate Students Examination ent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part. Spanish for Advanced Students P1 es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR. Spanish for Advanced Students P2 e second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synta written communication. Spanish for Advanced Students P3 e final part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is focu based on what students will need in their career. Spanish for Advanced Students Examination and their career. Spanish for Advanced Students Examination and written. The prerequisite ing passed the written test. Examination Content is based on syllabi of courses XSP1, XSP2, and XSP3 or on an individual study plar Spanish for Beginners Students Z2 ased on course XS21, and expects students to develop and extend the knowledge and skills acquired so far. Grammar structures an derstand short adapted written test and speech. Attention is also paid to cultural differences between Spanish-speaking countries a Republic. Realia of Spanish for Beginners Z3	Z         ic style. They will be it articles and summaniation.         ZK         itten part, students         Z         Course prerequisit         Z         Course prerequisit         Z         used on written com         ZK         e for admission to com         of the student.         Z         usental grammar struanish and will devel         Z         d lexis will be chose         and others such as         Z	2 e competent maries. The 4 will have 2 ess: level B2 2 ndependent 2 nmunication 4 oral part is 2 uctures and lop it. 2 en so as to the Czech 2
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3 Course XSP3 is the 04XSP3 Course XSP3 is the 04XSP3 Course XSP3 is the 04XSZ1 Course XSZ1 is th will be able to 04XSZ2 Course XSZ2 is b enable them to ur 04XSZ3 This course builds and outured control	able to work with specialized texts on the Internet. Spanish for Intermediate Students M3 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academ 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 ex Spanish for Intermediate Students Examination ent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part. Spanish for Advanced Students P1 es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR. Spanish for Advanced Students P2 e second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synta written communication. Spanish for Advanced Students P3 e final part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synta written communication. Spanish for Advanced Students Examination ent is the examination as given by the study plan. Examination XSPZK consists of two parts, namely oral and written. The prerequisite ing passed the written test. Examination content is based on syllabi of courses XSP1, XSP2, and XSP3 or on an individual study plan Spanish for Beginners Z1 e first stage of the five-semester programme of Spanish for Beginners Z1 ased on course XS21, and expects students to develop and extend the knowledge and skills acquired so far. Grammar structures an inderstand short adapted written texts and speech. Attention is also paid to cultural differences between Spanish-speaking countries a Republic. Realia of Spanish-speaking countries are also in	Z         ic style. They will be rt articles and summaniation.         ZK         itten part, students         Z         itten part, students         Z         Course prerequisit         Z         issed on written communities         ZK         e for admission to communities         anish and will devel         Z         istental grammar structure         Z         istental grammar structure         Z         istental grammar structure         Z         istental grammar structure         Z         ind others such as         Z         ind others such as	2 e competent maries. The 4 will have 2 tes: level B2 2 ndependent 2 nmunication 4 oral part is 2 uctures and lop it. 2 en so as to the Czech 2 o the realia to protérite
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3 Course XSP3 is the 04XSP3 Course XSP3 is the 04XSP2K The course content havi 04XSZ1 Course XSZ1 is th will be able t 04XSZ2 Course XSZ2 is b enable them to ur 04XSZ3 This course builds and cultural context	able to work with specialized texts on the Internet.           Spanish for Intermediate Students M3           are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write shot final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral ex Spanish for Intermediate Students Examination ernt is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part.           Spanish for Advanced Students P1           es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR.           ganish for Advanced Students P2           e second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synta written communication. of CEFR.           ganish for Advanced Students P3           e final part of the advanced Spanish course. It is based on texts chosen by the students will need in their career.           Spanish for Advanced Students Examination ant is the examination as given by the study plan. Examination XSPZK consists of two parts, namely oral and written. The prerequisite ing passed the written test. Examination content is based on syllabi of courses XSP1, XSP2, and XSP3 or on an individual study plan communicate at an elementar	Z         ic style. They will be it articles and summaniation.         ZK         itten part, students         Z         itten part, students         Z         Course prerequisit         Z         isten part, students         Z         isted on written commarker         anish and will devel         Z         ind others such as         Z         ist an introduction to the preferito perfect         Students are prepared.	2 e competent maries. The 4 will have 2 tes: level B2 2 ndependent 2 ndependent 2 nduction 4 oral part is 2 uctures and lop it. 2 en so as to the Czech 2 o the realia to, pretérito pred for this
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3 Course XSP3 is the 04XSP2K The course conte havi 04XSZ1 Course XSZ1 is th will be able t 04XSZ2 Course XSZ2 is b enable them to ur 04XSZ3 This course builds and cultural contex indefinido, pretérit	able to work with specialized texts on the Internet.           Spanish for Intermediate Students M3           are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write shot final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral ex Spanish for Intermediate Students Examination ent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part.           Spanish for Advanced Students P1           es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR.           Spanish for Advanced Students P2           e second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synta written communication.           Spanish for Advanced Students P3           e final part of the advanced Spanish course. It is based on syltabi of courses XSP1, XSP2, and XSP3 or on an individual study plan.           Spanish for Advanced Students Examination           ent is the examination as given by the study plan. Examination XSPZK consists of two parts, namely oral and written. The prerequisitt ing passed the written test. Examination content is based on syltabi of courses XSP1, XSP2, and XSP3 or on an individual study plan Spanish	Z         ic style. They will be it articles and summaniation.         ZK         itten part, students         Z         itten part, students         Z         Course prerequisit         Z         itten part, students         Z         itten part, students         Z         itten part, students         Z         itten part, students         Z         ised on written construction         and focuses on in         Z         ised on written construction         and the student.         Z         ised on written construction         anish and will devel         Z         d lexis will be chosed and others such as         Z         is an introduction to the preterito perfect students are prepared.	2 e competent maries. The 4 will have 2 tes: level B2 2 ndependent 2 nunication 4 oral part is 2 uctures and lop it. 2 en so as to the Czech 2 o the realia to, pretérito ared for this
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3 Course XSP3 is the 04XSP3 Course XSP3 is the 04XSZ1 Course XSZ1 is the will be able t 04XSZ2 Course XSZ2 is b enable them to ur 04XSZ3 This course builds and cultural contex indefinido, pretérit	able to work with specialized texts on the Internet.           Spanish for Intermediate Students M3           are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write show final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral ex Spanish for Intermediate Students Examination           ent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part.           spanish for Advanced Students P1           es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. or CEFR.           second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synta written communication.           spanish for Advanced Students P3           e final part of the advanced Spanish course. It is based on texts chosen by the students examination and is the examination as given by the study plan. Examination XSPZK consists of two parts, namely oral and written. The prerequisite ing passed the written test. Examination content is based on syllabi of courses XSP1, XSP2, and XSP3 or on an individual study plar is the examination as given by the study plan. Examination XSPZK consists of two parts, namely oral and written. The prerequisite ing passed the written test. Examination content is based on syllabi	Z         ic style. They will be         ic style. They will be         it articles and summaniation.         ZK         itten part, students         Z         Course prerequisit         Z         Course prerequisit         Z         issed on written corr         ZK         a for admission to condition of the student.         Z         issed on written corr         ZK         a for admission to condition the student.         Z         anish and will devel         Z         and others such as         Z         is an introduction to the preterito perfect         Students are prepared         Z	2 e competent maries. The 4 will have 2 tes: level B2 2 ndependent 2 nunication 4 oral part is 2 uctures and lop it. 2 en so as to the Czech 2 o the realia to, pretérito ared for this 2
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3 Course XSP3 is the 04XSP3 Course XSP3 is the 04XSZ1 Course XSZ1 is the will be able t 04XSZ2 Course XSZ2 is b enable them to ur 04XSZ3 This course builds and cultural contex indefinido, pretérit	able to work with specialized texts on the Internet.           Spanish for Intermediate Students M3           are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write shot final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral ex Spanish for Intermediate Students Examination and oral; to be eligible for the wr obtained non-graded assessment for course XSM3. Oral examination follows the written part.           Spanish for Advanced Students P1           es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR.           second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synte written communication.           spanish for Advanced Students P3           e final part of the advanced Spanish course, it is based on texts chosen by the students according to their future specialization. It is foct based on what students will need in their career.           Spanish for Advanced Students P3           e first stage of the five-semester programme of Spanish for Beginners Z1           spanish for Advanced Students P3           at is the examination as given by the study plan. Examination XSP2K consists of two parts, namely oral and written. The prerequisite ing passed the written test. Examination content is based on syllabi of courses XSP1, XSP2, and XSP3 or on an individual study pla	Z         ic style. They will be         ic style. They will be         it articles and summaniation.         ZK         itten part, students         Z         Course prerequisit         Z         Course prerequisit         Z         used on written corr         ZK         e for admission to cho of the student.         Z         in of the students such as         Z         in others such as         Z         is an introduction to the preterito perfect         Students are prepare         X         is speaking countrie	2 e competent maries. The 4 will have 2 tes: level B2 2 ndependent 2 nunication 4 oral part is 2 uctures and lop it. 2 en so as to the Czech 2 o the realia to, pretérito ared for this 2 s, mainly of
04XSM3 The course books a enough to use the 04XSMZK The course cont 04XSP1 Course concentrate 04XSP2 Course XSP2 is the 04XSP3 Course XSP3 is the 04XSP3 Course XSP3 is the 04XSZ1 Course XSZ1 is th will be able t 04XSZ2 Course XSZ2 is b enable them to ur 04XSZ3 This course builds and cultural contex indefinido, pretéritt 04XSZ4 The course is base Spain. It pays atte	able to work with specialized texts on the Internet.           Spanish for Intermediate Students M3           are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi Internet in Spanish and search for information of their specialization or field of interest. Students swill see the information to write sho final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral ex	Z         ic style. They will be it articles and summaniation.         ZK         itten part, students         Z         itten part, students         Z         Course prerequisit         Z         issed on written com         ZK         and focuses on in         Z         used on written com         ZK         e for admission to com         of the student.         Z         ised on written com         Z         ised on written com         ZK         anish and will devel         Z         ise an introduction to the student.         Z         iss an introduction to the preterito perfect         Students are prepared         Z         is speaking countrie         imperative, and su	2 e competent maries. The 4 will have 2 tes: level B2 2 ndependent 2 nunication 4 oral part is 2 octures and lop it. 2 en so as to the Czech 2 o the realia to, pretérito ared for this 2 s, mainly of ubjunctive),

04XSZ5	Spanish for Beginners Z5	Z	2
The course books	are supplemented with additional subtechnical materials, so the students will be gradually acquainted with peculiarities of Spanish for	r specific purposes	s. In its final
	part, the general Spanish course based on the course book will end with a written and oral examination.		
04XSZZK	Spanish for Beginners Examination	ZK	3
The course cont	ent is the examination as given by the study plan. Examination consists of two parts - written and oral. Student can register for oral ex	amination only if he	e/she has
	passed the written examination test.		
11APLG	Applications of Group Theory in Solid State Physics	ZK	2
Consideration of	atomic system symmetry allows, without any quantitative calculations, rigorously and precisely determine how many energy states the	ere are and what in	nteractions
and transitions be	etween them may occur. Therefore, the main purpose of this course is to describe the methods by which we can extract the information	n on the object that	tsymmetry
alone will provide.	The application of these methods is illustrated by an example of molecular orbitals, inner orbitals of ions in the crystal field environment	nt, normal modes o	of molecular
	vibrations, and selection rules for optical absorption transitions.		
11BSEM	Bachelor Seminar	Z	1
In the first part of t	he seminar, students familiarize themselves with the general principles of publishing and presenting scientific work and the formal requ	irements for bache	lors degree
projects at the fac	culty. The second part is designed as a practical training for the defence of the bachelors degree project. The students give oral preser	ntations of the curre	ent state of
the research result	ts achieved during the work on their projects. Each presentation is followed by a discussion on scientific matters as well as on the possibi	lities of improving t	he students
	performance.		
11ELEA	Instrumentation and Measurement	Z,ZK	2
	The course is the introduction to the instrumentation and measurement for physicists.		
11SFIPL	Seminar on Solid State Physics	KZ	2
1.Introduction of t	he Seminar and ?SSS? software features. 2. Module "bravais" - crystal structure and X-ray diffraction in 2D ? theory 3. Simulations of o	diffractive phenome	ena related
to following them	es: crystal lattice versus crystal structure, primitive cell, elementary cell, lattice plane, reciprocal grid, Laue and Bragg condition, atom	ic scattering factor,	structural
factor, extinction, p	ractical structural analysis 4. Module "laue" - Diffraction on perfect and imperfect crystals 5. Simulations: influence of structural disorder on	diffraction pattern,	atomization
and thermal os	cillations, quasi crystals 6."born" module - dynamics of crystalline grid in 1D ? theory 7.Simulations: planar waves, traveling and stand	ling waves, normal	modes,
polarization, energ	y and momentum transport, infinite chain, chain of finite lenght, boundary conditions, wave packets, group and phase velocity, dispersior	ı, pulses and their p	propagation,
localized modes, a	Inharmonicity 8. "debye" module - lattice dynamics and thermal capacity ? theory 9. Simulations: Brillouine zone, dispersion relation, de	nsity of states, ther	mal energy,
heat capacity 10."	drude" module - dynamics of classical electron gas in 2D ? theory 11.Simulations: diffuse electron movement, electron drift in an exte	rnal electric field, H	laynes and
Shockley experime	ent, electron mobility, electron motion in magnetic field, cyclotron frequency, Hall experiment, magnetorezistence 12.Assignment, elabo	pration and present	tation of the
	seminar work.		
11SPLA	Structure of Solid State	Z,ZK	4
Crystallograp	hy has an important role in the modern sciences because of its interdisciplinary nature. The aim of this lecture is to lay the basis of st	udy of solid state pl	nysics.
117FP	Basic to Solid State Physics	ZK	3
Description of fund	amental properties of solids following the regular long distance ordering of atoms in a crystal lattice. Based on the introduced bonding	interaction betwe	en atoms in
solids, various type	es of crystals and their properties are defined. The model of crystalline lattice dynamics in harmonic approximation is described and basic	c thermal properties	s of crystals
are derived. The	periodic potential of the crystal lattice is introduced and its relation to the following model describing the energetic state of electrons ir	n solids by means (	of electron
energy bands e	xplained. The special consequences of band approach to the physical properties of solids are elucidated. The aim of the course is to s	systematically intro	duce and
	interpret a broad phenomenological basis of physical properties of crystalline solids		
11ZFPL	Basic to Solid State Physics	KZ	2
Description of fund	amental properties of solids following the regular long distance ordering of atoms in a crystal lattice. Based on the introduced bonding	interaction betwe	en atoms in
solids, various type	es of crystals and their properties are defined. The model of crystalline lattice dynamics in harmonic approximation is described and basic	c thermal propertie	s of crystals
are derived. The	periodic potential of the crystal lattice is introduced and its relation to the following model describing the energetic state of electrons in	n solids by means (	of electron
energy bands e	xplained. The special consequences of band approach to the physical properties of solids are elucidated. The aim of the course is to s	systematically intro-	duce and
	interpret a broad phenomenological basis of physical properties of crystalline solids		
12NME1	Numerical Methods 1	7.7K	4
There are explaine	at the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology. Me	thods for solution o	f tasks verv
important for phys	sicists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computations	ional environment	MATLAB is
	used as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.		
12NT	Nanotechnology	7K	2
Lectures will intro	uce students mainly to modern technological methods of preparation of semiconductor metal and dielectric nanostructures. Physica	and chemical fund	daments of
different technol	conses (MBF_MOVPE_FBI_sol-get and colloidal solution) will be explained Substantive attention will be devoted to epitaxial technoloc	ties which are subs	stantial for
nanostructure pre	paration. Particular emphasis will be focused on detail characterization of "in situ" and "ex situ" techniques, their applications for heter	rostructure and nar	nostructure
arowths will be dis	cussed as well. Some supportive technical methods - lithography, diffusion, evaporation, ion implantation, contact and dielectric laver	preparation will be	mentioned
5	as well as soldering and encasement.		
12PAS	Computer Algebra Systems	7	2
Practically oriente	a distroduction to computer algebra systems (CAS), their main characteristics, ways and means of using them. Constituent part is real	ized in computer d	
	students acquire basic skills with CAS by solving relatively simple and basic tasks from mathematics and physics.		
		7	2
	initioducional computer workstation and suppresenting. Processor, moment, bus, devices, bard disk, petwork interfa	<u> </u>	∠ oftwaro
Principles of opera	operating systems, reisonal computer, worstautor and supercomputers, ricessor, memory, bus, deness, man disk, network memory and the supercomputer of the services in commentation. File system file attributes working with	th files. Text editors	vi emars
Command intern	ang systems: operating system of the barriers of the second s	ools Graphical use	r interface
X-windows Co	on the second	omputer Network s	services.
	hardware sharing, mail. scp. etc. Network applications		
12LI\/D	Introduction to Scientific Computing	7	2
Practically orient	ed Introduction to scientific computing. Constituent part of the course is realized in computer classroom Students get acquiated with a	ome basic tools for	∠ t scientific
	and technicyal computing, data analysis, data visualisation and algorithm development	0013 101	
127400		771/	0
	FULIUATION IN OUT OF THE PROVIDE AND A CONTRACT AND		∠ ain coal of
the lecture is to a	s are very pasies or opaids - electromagnetic meory, intear opaidal physics and material effects, basics or nonlinear effects, and geome	the character of the	alli yual ul
work Particular to	uran, on the bability level, broad and general information on optics, giving an essential orientation in the field, especially with respect pice are further elaborated during departmental masters program. The lecture stems from the electrodynamic notion of place ways in t	vacuum (including	olarization
effects) and fur	ther from material medium. It evolutions basics of linear and nonlinear response in material medium and dispersion properties. It port is	forms on consecut	Polarization
anisotronic media	Litexplains processes induced by boundary conditions at interfaces. It also discusses the consequences of statistics on interfacence in	nrocesses evolution	s elemente
	, a signame processes madeed by boundary conditions at internetses, it also uncousts the consequences of statistics of interferences of statistics of interferences of the analysis of the consequences of the	al form including fu	ndamentale

122EL1         Backberg in the second se	of grating diffraction. Based on this diffraction principle, basic functioning of holography is clarified. Finally, the lecture unravels the geometrical optics limit. It takes notice on geometrical approach imaging substitutive scheme of a paravial imaging system, and optical aperrations. It shows fundamentals of imaging in optical instruments.				
The subject provide primary toxologies of check the centre of the centre	127EL1	Basic Electronics 1		3	
activation include syntaxis and complex method are explained. Proper orcut analysis is also leduced. The subject find part deals with basis theme of Supal arcticle set [126E].         S.Z.K.         3           The subject fields of biles is on the field of biles is and the subject field of biles is on the subject field of biles is and the subject field of biles is and the subject field of biles.         Z         10           14BPFII         Bacheloff Thesis is and the subject is indicated the subject is indicated biles.         Z         10           14DPHAID         Bacheloff Thesis is and the subject is indicated biles.         Z         10           14DPHAID         Bacheloff Thesis is and the subject is indicated biles.         Z         10           14DPHAID         Bacheloff Thesis is and the subject is indicated biles.         Z         10           14DPHAID         Bacheloff Thesis is and the subject is indicated biles.         Z         2           14DVLS         Dynamics of Linear Systems         ZZK         2           14DVLS         Dynamics of Linear Systems         ZZK         2           14ELM         Electron Microscopy         KZ         2           14DVLS         Dynamics of Linear Systems         ZZK         2           14DVLM         Dynamics of Linear Systems         ZZK         2           14DVLM         Electron Microscopy         10 decade	The subject provi	des primary knowledge of circuit theory concerning principles of electronic circuits in both stationary and harmonic stable state. Circu	it analysis method	s for linear	
12EL2         Basic Electronics 2         Z,ZK         3           11ae subject tobors with the State Decortons 1: Service outcours are accelered. Hexcurses the part we that State Tomors (cours Hexcurses)         Z         5           14BPF12         Statem runter guidement of hexe parts in the terms outloing on the given particular tight for may guide.         Z         10           14LPHI2         Statem runter guidement of hexe supports the text on soling on the given particular tight for may guide.         Z         10           14LPHIA         Statem runter guidement of hexe supports the text on soling on the given particular tight for may guide.         Z         10           14LPHIA         Statem runter guidement of hexe supports the text on soling on the given particular tight for may guidement of hexe supports the text on soling on the form soling tax. An explore text on soling tax An explore text on soling tax An explore text on the match of text on text on the match of text on the match of text on t	circuits includ	e symbolic and complex method are explained. Proper circuit analysis is also lectured. The subject's final part deals with transient eff	ects inside linear c	ircuits.	
The staged blows up with the Basic Electronics 1. Semiconductor elements basic properties are explained. Thessian 1 and deal with basic Electronics 1. Has Dachelof Thessia 1 and the stage properties are explained. The stage 1 and the stage properties are explained to be the one year. Z is 1 and the stage of the stag	12ZEL2	Basic Electronics 2	Z,ZK	3	
14BPF11     Student under guidance of hather separational been working on the given particular topic bot on eyver.     Z     5       14BPF12     Student under guidance of hather separational backen motions of the given particular topic bot on eyver.     Z     10       14CHMA     Materials Characcerzation     KZ     4       Addation: The select of advances and other separation selecting the backen topic selections. All proteins for the backen topic selections. The backen topic selections in the backen topic selection of the backen topic selections. The backen topic selection of the backen topic selections. The backen topic selection of the backen topic selections. The backen topic selections in the backen topic selections. The backen topic selections in the backen topic selections. The backen topic selections in the backen topic selections in thebacken topic selection topic selections. The backen topic s	The subject follow	ws up with the Basic Electronics 1. Semiconductor elements basic properties are explained. Thecourse's final part deals with basic th	emes of logical cir	cuits field.	
Student under guidenice of holder sevents has been working on the given perturbute tops for one year.         Z         10           142BF12         Student under guidenice of holder sevents has been working on the given perturbute tops for one year.         KZ         40           Addrect The student's concentration methods of characterization. The student is the student hold to the student is the student of the student of the student is the student of the student is the student of the student is the student of the student is the student of the student is the student i	14BPFI1	Bachelor Thesis 1	Z	5	
H3PH Z         Baddeet under gulations of hister supmice that we support that		Student under guidance of his/her supervisor has been working on the given particular topic for one year.	-	10	
Hard Human         Materials Characterization         Materials Characterization         Materials Characterization         Materials Characterization           common numbed of nationals characterization. The source is an order the source is an order the source is an order to a particular variants in an order to a source in an environ the source is an environ to the source is an environ the source is an environ to the source is an environ the source is an environ to the source is an environt the source is an environ to the source is an environ the environ environ the source is an environ environ envinte the environ environ envinte the environ environ	14BPFI2	Bachelor Thesis 2	Z	10	
Advanced To be subject to composed of lectures, exercision and decussion regarding the bade methods of a host of the subject to instruction control to the normal exercision of the decussion exercision to the badden show the subject to the s		Materials Characterization	K7	1	
common methods of materials baracterization, their couputs and the increpretation of the solution data. An emphasis is placed on the induitations, Mare pusating this solutions. The pusating this is collaborating introduced material and evaluates the obtained results.     TeleMinor Materials and an evaluates the obtained set of the obtained set as excircits of the badgering and induitions. Mare pusating this is collaborating introduced material and evaluates the obtained results.     TeleMinor Materials (The solution of the excircted are material and evaluates the obtained set of the obtained set as the obtained set of the obtained set as the obtained set of the obtained s	Abstract: The sub	iect is composed of lectures, exercises and discussion regarding the basic methods of characterization. The aim of the subject is to in	troduce students t	o the most	
scientific archies in the field of materialized Apart of the subject is an excursion to the luboratories of the department and its collaborating institutions. After passing the science accurates the luboratives of the department and its collaborating institutions. After passing the science accurates in the department and its collaborating institutions. After passing the science accurates in the department and its collaborating institutions. After passing the science accurates in the construction of accurates accurates and institution. Analysis of motion stability.           14DELM         CZX         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         3	common method	s of materials characterization, their outputs and the interpretation of the obtained data. An emphasis is placed on the individual work	of the students w	ith current	
address the suddent should be able to choose the adequate dramaterization method for a particular material and extended the dramaterization method.         Z,ZK         2           Abstract: Modelling of linear mechanical systems to memory of sample computational system for discrete elements. Free and/or forced vibration of mechanical systems with one or too degrees of freedom. Hincine capacitors of motion. Having deministion and solution. Analysis of motions and solution and solution. Analysis of motions and solution. The solution of a linear disalicit. The solution of solution of a linear disalicit solution of an linear disalicit solution. The solution and the solution and solution. The solution and the solution of analysis and writing solution and solution. The solution is analysis and writing solution of a linear disalis. The solution and solution and there and solution and solution. The solution and solution. Analysis and writing and solution and solution. The solution and solution and solution and solution. The solution and solution. The solution and solution and solution and solution. The solution and solution and solution and solution. The solution and solution and solution and solution analysis and writica sol	scientific articles in	the field of materials characterization. A part of the subject is an excursion to the laboratories of the department and its collaborating	institutions. After	passing this	
14DrLS         Dynamics of Linear systems         Z,ZK         2           Abstract: Modeling of linear mechanical systems with core or two degrees of freedom. Knoic equations of motion - their determination and solution. Analysis of notice analysis of the analysis of random solution. Analysis of notice analysis of nanosance analysis of nanosance and the analysis of random solution. Analysis of notice analysis of nanosance and of the analysis of random solution. Analysis of notice analysis of nanosance and of the analysis of random solution and the strength of the curses is given to the interaction of difference in difference and manager techniques are also cover A A particular attention is given to analysical motions as defined free on the size of the analysis of random solution. The first particulars a defined free on the size of difference and the strength of analysis of manager bechniques are also cover A A particular attention is given to analysical motions as defined free on the size of difference and the strength of analysis of manager bechniques are also cover A A particular attention is given to analysical motions and effecting and the strength of materials. The first particulars a defined free difference and the strength of materials is described. Includes and the strength of materials is described. Includes and the strength of analysis of the covers experiments, and allows.           14FKO         Metal Physics         Metal Physics         S         S         S         S           14FKO         Metal Physics         Paracticum in Materials is described. Including solution and the metal analysis of working analysis of working analysis.         KZ         3           14FEM         Paracticum of finine demetal on the coves severent of the cove section of		subject, the student should be able to choose the adequate characterization method for a particular material and evaluate the obtain	ed results.	-	
Adatact: Nuclearing of integer mechanical systems with othe drives         Integration of the drives         Integration of the drives           14ELM         Integration of the drives         Integration of the drives         Integration of the drives           14ELM         Integration of the drives         Integration of the drives         Integration of the drives           14ELM         Integration of the drives         Integration of the drives         Integration of the drives           14ELM         Integration of the drives         Integration of the drives         Integration of the drives           14EMI         Integration of the drives         Integration of the drives         Integration of the drives         Integration of the drives           14EMI         Integration of the drives         Integration of the drives         Integration of the drives         Integration of the drives           14EMI         Integration of the drives         Integration of the drives         Integration of the drives         Integration of the drives           14EMI         Integration of the drives         Integration of the drives         Integration of the drives         Integration of the drives           14FMO         Material and the drives         Material and the drives         Integration of the drives         Integration of the drives           14FMO         Materedrithe drives         Materian of the subject	14DYLS	Dynamics of Linear Systems	Z,ZK	2	
Het LM         Electron Microscopy         KZ         2           Astract: In iteraces the students are introduced to the indirecegopic methods of the decidence of the indirecegopic set of the indirecegopic set of the decidence of the indirecegopic set of the indirecegopic set of the decidence of the indirecegopic set of the indirecegopic set of the decidence of the decid	Abstract: Modelling	degrees of freedom. Kinetic equations of motion - their determination and solution. Analysis of motion stability	inical systems with	one or two	
Astract. The inscreense the students are introduced to the microscopic methods used for the characterization of materials, this layers of microscopic methods used for the characterization of materials. The layers of microscopic and to obtain the student of the microscopic methods press of microscopics. A microarterization is given to the interaction of different year of radiation with matter mathematical formulations and imaging techniques are also covered. A particular attention is given to analytical methods and imaging techniques in another inclusions of continuum mechanics to the practical angineering solution of simple problems on tension. Detending, sharing rad to that is stored and the straph of materials is described, including attending of techniques and the straph of materials is described including. The first part contains a detailed theory of stress, maint strate and linear elastical of processes encountered in production and thermo-mechanical treatments is the practical engineering solution of simple problems on tension. Details and the stress encluding. The physical background of processes encountered in production, materials is described, including additional, or systal defects, theory of solid solutions, theory of additional materials is described in cluster and the stress and solaries of materials and users. The subject is to introduce students to the basks of stored one of measurements, data analysis and logical structure of the reports. Materials actions are designed to above abadents the advect and there theory of solid solution and imaging and trending practical problems in mechanics. The subject is focused on correling and dividually desgr. Case analysis and soligical attracture of the reports. The subject is focused on correling and dividually desgr. Case analysis and soligical structure of the solid solid solid formating tects, equations, charts, tables, presentations and and users and attria analysis of cast attria. The first subscopies and the subscopies attriate and the subscopies att	14FI M		K7	2	
to the analogy of light and electron microscopy and to various types of microscopes. An important part of the course is given to the interaction of different types of contrast, and different types of and the description of particular parts of the microscopes. The inducation to kinematic and dynamic theory of different types of contrast, and different types of and the description of a particular parts of the microscopes and dynamic theory of different types of contrast, and different types of and the description of a particular parts of the microscopes and dynamic theory of different types of and the description of a part types of the microscopes and the description of a micro of the microscopes and the description of the parts of the microscopes and types of the different types of the differen	Abstract: In this cou	urse the students are introduced to the microscopic methods used for the characterization of materials, thin layers or nanoparticles. The	e introductory part	is dedicated	
mathematical formulations and tools used in microscopy and to the description of particular parts of the microscopes. Introduction to kinematic and dynamic theory of diffication, types of contrast, and diffication and imaging techniques in a software resolution.           14EM1         Issued to microscopy and to the description of particular parts of the microscopes. Introduction to reserve an other features on continuum mechanics to the practical engineering adulting of problems on tension. berding, sharing and torison in the cross section of bars and beams.         Issued to microscopy and the features on continuum mechanics to the practical engineering solution of simple problems on tension. berding, sharing and to them one-thanical treatment of metallic materials is description, crystal defects, theory of solid solutions, theory of dislocations, diffusion, hardening and softening of metalls and alloys.         Issued to microscopy and the features on the form of metallic materials is description. Crystal defects, theory of solid solutions, theory of dislocations, diffusion, hardening and softening of metalls and alloys.         Issued to microscopy and the form of metallic materials is description. Crystal defects, the advert of the basks of solentific work in the form of mesaurements, data analysis and blagical structure of the reports. Simple case solutes of materials solute and the reports.         Issued to microscopy and the reports.           14PMKOP         Practicum of finite elements methods         Z         Issued to microscopy and the reports.           14TED         Creating Electronic Documents         Z         Issued to microscopy and the reports.           14TED         Creating and processing and processing of metals and alloys of materials and alloys of mat	to the analogy of lig	th and electron microscopy and to various types of microscopes. An important part of the course is given to the interaction of differen	t types of radiation	with matter,	
and example         TeleMinic         ZZK         5           Abstract: The course represents an introduction for several another inclures and contains and the strength of materials. The first part contains a detailed theory of stress, amail strains and linear elasticity. The second one represents a logial detailes and the strength of materials. The first part contains a detailed theory of stress, amail strains and linear elasticity. The second one represents a logial detailes and the strength of materials. The first part contains a detailed theory of stress, theory of stoles and beams.         ZZK         6           14FKO         Metal Physics         ZZK         6           Abstract: The physical background of processes encountered in production and thermo-machanical treatment of metallic materials and and and lings.         KZ         3           14FKO         Practicum in Materials         KZ         3           Abstract: The aim of this aubject is to introduce students to the bacis of scentific work. The subject is closued on correct dual analysis and origing a tructure of the reports. Atter completing the subject has ubout should be able to individually design, execute and evaluate experiments.         ZK         3           14FEM         Creating and presenting student the sess. Individual exercises focus on creating and formating texts, equations, charts, tables, presentations and entire documents in an office auite.         ZK         6           14FEM         Creating and processing of metals contex and angingering disciplines dealing with stress and strain analysis of relatistruture parts and the resent astreating and stress and s	mathematical form	ulations and tools used in microscopy and to the description of particular parts of the microscopes. Introduction to kinematic and dyna	mic theory of diffra	action, types	
14EM1         Elasicity1         ZZK         5           Abstract: The course represents an introduction for several another lectures on continuum mechanics and the strength of materials. The first part contains a detailed theory of stress, small strains and linear elasticity. The second one represents a logical descent from the continuum mechanics to the practical engineering solution of simple problems on tension. Detailing, shearing and torxion in the consessection of bars and beams.         ZZK         6           14FKO         Metal Physics         ZZK         6           Abstract: The physical background of processes encontinuer and thermo-mechanical treatment of metalis and alloys.         KZ         3           14PMA         Practicum in Materials         Single case studies of materials is described, including soldification, crystal defects. Alter completing the subject is to introduce students to the backs of second on dividually design, execute and evaluate experiments.         XZK         3           14PMKOP         Practicum of finite elements methods         ZK         3           14TED         Creating Electronic Documents         ZK         2         2           14TEM         Engineering Mechanics         ZK         3           14TEM         Engineering Mechanics         Z         2         2           Astract: The course represents a link-up between the theoretical mechanics or rigid booles and engineering disciplines dealing with stress and strain anolysis of reed struins processing of mechan	of contrast	, and diffraction and imaging techniques are also covered. A particular attention is given to analytical methods and imaging technique	s in atomic resolut	ion.	
Abstract: The course represents an introduction for several another fedures on continuum mechanics and the strength of internations of simple problems on tension, bending, shearing and torsion in the cross section of bars and beams.          14FK0       Metal Physics       Z,ZK       6         Abstract: The physical background of processes encountered in production and thermo-mechanical treatment of mealine matrinal is described, including solidification, crystal defects, theory of solid solutions, theory of allossion, hardening and softening of metals and alloys.       Z,ZK       6         Abstract: The aphysical background of processes encountered in production and thermo-mechanical treatment of mealine matrinal is described, including solidification, crystal defects, and this subject is to introduce students to the basics of solonitific work in the form of measurements, data analysis and togical structure of the reports. After completing the solubier, the student should be able is individually design, execute and evaluate experiments.       ZK       3         14FEM       Creating and presenting the cuptus of their work. The subject is for used and avaluate experiments. After completing the subject, the student should be able is individually design, execute and evaluate experiments.       Z       2         14FEM       Creating and presenting student theses. Individual exercises focus on creating and formating texts, equations, charts, tables, presentations and entire documents in an office suite.       Z       2         14FEM       Engineering Mechanics       Z/ZK       6         Abstract: The course represents a link up between the theoretical mechanics, end dynamics and their application. <td>14EM1</td> <td>Elasticity 1</td> <td>Z,ZK</td> <td>5</td>	14EM1	Elasticity 1	Z,ZK	5	
Intersteins af biglior description mechaniss of in production of single products of interson,	Abstract: The cour	se represents an introduction for several another lectures on continuum mechanics and the strength of materials. The first part contain Uncertainty. The second are represente a logical descent from the continuum mechanics to the practical engineering colution of	ins a detailed theor	ry of stress,	
14FKO         Metal Physics         Z,ZK         6           Abstract: The physical background of processes encountered in production and thermo-mechanical treatment of metallic materials is described, including solidification, crystal defects, theory of solid solucions, floring of disolucion, activity and the solucity is and varies and advection. The physical background of processes encountered in production and thermo-mechanical materials and advects.         KZ         3           14PMA         Practicum in Materials         KZ         3           Abstract: The aim of this subject is to inductive of varies of solucity and in the form of measurements, data analysis and writing of reports. Simple cases calculates of the reports. After completing the subject, the subden should be able to inductually diseing, execute and evaluate experiments.         ZK         3           14PMKOP         Practicum of finite elements methods         ZK         3           14TED         Creating Electronic Documents         Z         2           Basic skills for creating and presenting student theses. Individual evercises focus on creating and formating texts, equations, charts, tables, presentations and entire documents in an office suite.         ZZK         6           Abstract: The course represents a link up between the theoretical mechanics of rigid bocies and engineering disciplines dealing with stress and strian analysis of real structure parts (elasticity, flaat/ur mechanics, el.). Principles of statics, kinematics, and dynamics and their application.         ZZK         6           14ZEKOS         Testing an	Sinali Strains and	bending, shearing and torsion in the cross section of bars and beams.	simple problems o		
Abstract: The physical background of processes encountered in production and thermo-mechanical treatment of metalis is described, including solidification, crystal defects, theory of solid solutions, theory of dislocations, diffusion, hardreining and softening of metals and alloys.           14PMA         Practicum in Materials         KZ         3           Abstract: The aim of this subject is to intoduce students to the basics of scientlic work in the form of measurements, data analysis and writing of reports. Simple case studies of materials science are designed to show students the relight way of presenting the outputs of their work. The science are designed to show students the relight way of presenting the use of their work. The science and evaluate experiments.         IVE         3           14PMKOP         Practicum of finite element code for solving practicual problems in mechanics.         ZK         3           14PMKOP         Use of commercial finite elements code for solving practicual problems in mechanics.         Z         2         2           Basic skills for creating and presenting student theeses. Individual exercises focus on creating and formating texts, equations, charts, tables, presentations and entire documents in an office suite.         Z/ZK         6           14ZEKOS         Testing and processing of more last, sharematics, and dynamics and their application.         Z/ZK         4           14ZEKOS         Testing and processing of metals and alloys         Z/ZK         4           14ZEKOS         General Chemistry 1         Z         3           The most impo	14FKO	Metal Physics	7.7K	6	
Item of solid solutions, theory of disconting, and softening of metals and alloys.           Item of this subject is to introduce students to the basics of solentific work in the form of measurements, data analysis and writing of reports. Simple case studies of materials science are designed to show students the tight way of presenting the outputs of their work. The subject is focused on correct data analysis and logical structure of the reports. After completing the subject, the student should be able to individual design, execute and evaluate experiments.           INTERD INTERDISTING TO THE SUBJECT SOLUCE AND THE INTERDISTING TO THE INTERDISTIC TO THE INTERDISTICATION OF THE INTERDISTIC TO THE INTERDISTIC	Abstract: The physi	ical background of processes encountered in production and thermo-mechanical treatment of metallic materials is described, includin	g solidification, cry	stal defects,	
14PMA       Practicum in Materialis       KZ       3         Abstract: The similar of this subject is to introduce students to the basics of scientific work. The subject is focused on correct data analysis and virting of reports. Simple case studies of materials science are designed to show students the right way of presenting the outputs of their work. The subject is focused on correct data analysis and virting of reports. Simple case studies of materials science are designed to show students the right way of presenting the outputs of their work. The subject is focused on correct data analysis and virting excess focus on creating and formating texts, equations, charts, tables, presentations and entire documents in an office suite.         14TED       Vise of commercial finite elements methods       Z       2         Basic axilits for creating and presenting student theses. Individual excess focus on creating and formating texts, equations, charts, tables, presentations and entire documents in an office suite.       Z/ZK       6         14TEM       Engineering Mechanics       Z/ZK       4         14ZEKOS       Testing and processing of metals and alloys       Z/ZK       4         14ZEKOS       Testing and processing of metals and alloys       Z/ZK       4         14ZEKOS       Testing and processing of metals and alloys       Z/ZK       4         14ZEKOS       General Chemistry 1       Z       3         The nost important concepts, quantities and units used in chemistry are introduced in the course General Chemistry 1. Their significance and practi		theory of solid solutions, theory of dislocations, diffusion, hardening and softening of metals and alloys.			
Abstract: The aim of this subject is to introduce students to the basics of scientific work in the form of mesurements, data analysis and writing of reports. Simple case studies of materials science are designed to show students the right way of presenting the outputs of their work. The subject is focused on correct data analysis and logical structure of the reports. After completing the subject, the student should be able to individually design, execute and evaluate experiments.       ZK       3         14PMKOP       Practicum of finite element code for solving practical problems in mechanics.       Z       2         14TED       Creating Electronic Documents       Z       2         Basic skills for creating and presenting student theses. Individual exercises focus on creating and formatting texts, equations, charts, tables, presentations and entire documents in an office suite.       Z,ZK       6         Abstract: The course represents a link-up between the theoretical mechanics of right bodies and engineering disciplines dealing with stress and strain analysis of real structure parts (elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.       Z,ZK       4         14ZZKOS       Testing and processing of metals and alloys of non-ferrous metals. Technical drawing and CAD.       Z       3         15CH1       General Chemistry 1       Z       3         The subject is in ortesting each remoters in drawing and processes.       Stockal strain concepts, quantities and units used in chemistry are introduced in the course General Chemistry 1. Their significance and practical	14PMA	Practicum in Materials	KZ	3	
Interview of presenting the outputs of there work. The subject is focused on correct data analysis and logical structure of the reports.           14PMKOP         Practicum of finite elements methods         ZK         3           14TED         Creating Electronic Documents         Z         2           Basic skills for creating and presenting student should exercises focus on creating and formatting texts, equations, charts, tables, presentations and entit documents in an office suite.         Z/K         6           14TEM         Engineering Mechanics         Z/K         6           Abstract: The course represents a link-up between the theoretical mechanics, etc). Principles of statics, knematics, and dynamics and their application.         Z/K         4           14ZEKOS         Testing and processing of metals and alloys         Z/K         4           Inscison tests, hardness, impact toughness, tech-hological testing, falciup testing, creep testing, Light microscopy, preparation of specimens for macro- and micro-observation. Casting, forming, welding, soldering, brazing, powder metallurgy, mechanical machining. Copper alloys, aluminium alloys, titanium alloys, stacila alloys of non-ferrous metals. Technical drawing and CAD.         Z         3           15CH1         General Chemistry 1         Z         3         3           The wolf impact toughness, technological testing, falciup testing, creating and processes. Using various examples, stock in working and the application is paid to general Chemistry 2.         Z/K         3 <td>Abstract: The air</td> <td>n of this subject is to introduce students to the basics of scientific work in the form of measurements, data analysis and writing of rep</td> <td>orts. Simple case s</td> <td>studies of</td>	Abstract: The air	n of this subject is to introduce students to the basics of scientific work in the form of measurements, data analysis and writing of rep	orts. Simple case s	studies of	
14PMKOP         Practicum of finite elements methods         ZK         3           14TED         Creating Electronic Documents         Z         2           Basic skills for creating and presenting student theses. Individual exercises focus on creating and formatting texts, equations, charts, tables, presentations and entire documents in an office suite.         Z,ZK         6           14TEM         Engineering Mechanics         Z,ZK         6           Abstract: The course represents a link-up between the theoretical mechanics, ot juid bodies and engineering disciplines dealing with stress and strain analysis of real structure parts (elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.         Z,ZK         4           14ZZKOS         Testing and processing of metals and alloys         Z,ZK         4           14ZZKOS         Testing and processing of metals and alloys         Z,ZK         4           14ZZKOS         Testing and processing of metals and alloys         Z,ZK         4           14ZZKOS         Testing and processing of metals and alloys         Z,ZK         4           14ZZKOS         Testing and processing of metals and alloys         Z,ZK         4           15CH1         General Chemistry 1         Z         3           The most important concepts, quantities and units used in chemistry 1. The significance and practical use are illustrated by exam	materials science a	Ite designed to show students the right way of presenting the outputs of their work. The subject is focused on correct data analysis and After completing the subject, the student should be able to individually design, execute and evaluate experiments.	logical structure of	the reports.	
Use of commercial finite element code for solving practical problems in mechanics.         Z         2           14TED         Creating Electronic Documents         Z         2           Basic skills for creating and presenting student theses. Individual excrises focus on creating and formatting texts, equations, charts, tables, presentations and entire documents in an office suite.         Z,ZK         6           Abstract: The course represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and strain analysis of real structure parts (elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.         Z,ZK         4           142ZKOS         Testing and processing of metals and alloys         Z,ZK         4           Tension tests, hardness, impact toughness, technological testing, fugue testing, creep testing. Light microscopy, preparation of specimens for macro- and micro-observation. Casting, forming, welding, soldering, brazing, powder metallurgy, mechanical machining. Coper alloys, aluminium alloys, stanium alloys, supecial alloys of non-ferrous metals. Technical drawing and CAD.         Z         3           15CH1         General Chemistry 1         Z         3           The most important concepts, quantities and units used in chemistry are introduced in the course General chemistry 1. Their significance and practical use are illustrated by examples solved in exercises.           15CH2         General Chemistry 1. The significance and practical use of explained principles are illustrated by examp	14PMKOP	Practicum of finite elements methods	ZK	3	
14TED         Creating Electronic Documents         Z         2           Basic skills for creating and presenting student theses. Individual exercises focus on creating and formatting texts, equations, charts, tables, presentations and entire documents in an office suite.         4.7.2.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1		Use of commercial finite element code for solving practical problems in mechanics.	I		
Basic skills for creating and presenting student theses. Individual exercises focus on creating and formating texts, equations, charts, tables, presentations and entire documents in an office suite.       Image: Comparison of the comparison o	14TED	Creating Electronic Documents	Z	2	
after Suite.           14TEM         Engineering Mechanics         Z,ZK         6           Abstract: The course represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and strain analysis of real structure parts (elasticity, plasticity, tracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.           14ZZKOS         Testing and processing of metals and alloys         Z,ZK         4           Tension tests, hardness, impact toughness, technological testing, fatigue testing, creep testing. Light microscopy, reparation of specimens for macro- and micro-observation. Casting, forming, welding, soldering, brazing, powder metallurgy, mechanical machining. Copper alloys, aluminium alloys, stranium alloys, special alloys of non-ferrous metals. Technical drawing and CAD.           15CH1         Ceneral Chemistry 1         Z         3           The most important concepts, quantities and units used in chemistry are introduced in the course General Chemistry 2         Z,ZK         3           15CH2         General Chemistry 2         Z,ZK         3           The usbicit is the continuation of the course General chemistry 1. The significance and practical use are illustrated by examples solved in exercises.         3           17UING         Introduction to Engineering wills at basic level (e.g. material processes. Using various examples, the fact that the validity of these principles is not restricted only to chemical should and general engineering skills at basic level (e.g. material properties and behavior, bas	Basic skills for crea	ating and presenting student theses. Individual exercises focus on creating and formatting texts, equations, charts, tables, presentatio	ns and entire docu	ments in an	
14 EW       Engineering interchances       2,2K       o         Abstract The course represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and strain analysis of real structure parts (elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.       2,ZK       4         14ZZKOS       Testing and processing of metals and alloys       2,ZK       4         rension tests, hardness, impact toughness, technological testing, targue testing, Light microscopy, preparation of specimens for macro- and micro-observation. Casting, forming, welding, soldering, brazing, powder metallurgy, mechanical machining. Copper alloys, aluminium alloys, stianium alloys, special alloys of non-ferrous metals. Technical drawing and CAD.         15CH1       General Chemistry 1       Z       3         The most important concepts, quantities and units used in chemistry are introduced in the course General Chemistry 1. The main attention is paid to general principles governing chemical processes. Using various examples, the fact that the validity of these principles is not restricted only to chemical processes is documented. The significance and practical use of explained principles are illustrated by examples solved in exercises.         17UING       Introduction to engineering skills. Students should gain general engineering skills at basic level (e.g. material properties and behavior, basics of manufacturing and production, quality assurance, environmental impacts.). In addition, the introduction to scientific work and technical drawing will be included.       KZ       4         Intro		office suite.	7 71/	0	
Interview       (elasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.         14ZZKOS       Testing and processing of metals and alloys       Z,ZK       4         Tension tests, hardness, impact toughness, technological testing, latigue testing, creep testing. Light microscopy, preparation of specimens for macro- and micro-observation. Casting, forming, welding, soldering, brazing, powder metallurgy, mechanical machining. Copper alloys, aluminium alloys, titanium alloys, special alloys of non-ferrous metals. Technical drawing and CAD.         15CH1       General Chemistry 1       Z       3         The most important concepts, quantities and units used in chemistry are introduced in the course General Chemistry 1. Their significance and practical use are illustrated by examples. Solved in exercises.       Z,ZK       3         15CH2       General Chemistry 2       Z,ZK       3         The wobject is the continuation of the course General chemistry 1. The main attention is paid to general principles governing chemical processes. Using various examples, the fact that the validity of these principles is not restricted only to chemical processes is documented. The significance and practical use of explained principles are illustrated by examples solved in exercises.         17UING       Introduction to Engineering       KZ       3         This course provides introduction to engineering skills. Students should gain general engineering skills at basic level (e.g. material properties and behavior, basics of manufacturing and production, quality assurance, environmental impacts.). In addition, the	14 I EIVI Abstract: The cour	Engineering IVIECRATICS se represents a link-up between the theoretical mechanics of rigid bodies and engineering disciplines dealing with stress and strain a	Z,ZN	0 Icture parts	
14ZZKOS       Testing and processing of metals and alloys       Z,ZK       4         Tension tests, hardness, impact toughness, technological testing, fatigue testing, creep testing, Light microscopy, preparation of specimens for macro- and micro-observation. Casting, forming, welding, soldering, brazing, powder metallurgy, mechanical machining. Copper alloys, aluminium alloys, special alloys of non-ferrous metals. Technical drawing and CAD.         15CH1       General Chemistry 1       Z       3         The most important concepts, quantities and units used in chemistry are introduced in the course General Chemistry I. Their significance and practical use are illustrated by examples solved in exercises.       Z,ZK       3         15CH2       General Chemistry 2       Z,ZK       3         The wolged is not restricted only to chemical processes is documented. The significance and practical use of explained principles are illustrated by examples, the fact that the validity of these principles introduction to engineering skills. Students should gain general engineering skills at basic level (e.g. material properties and behavior, basics of manufacturing and production, quality assurance, environmental impacts.). In addition, the introduction to scientific work and technical drawing will be included.         18PMTL       Programming in MATLAB       KZ       4         Introducting Matlab environment as efficient tool for computation in complex arrays and symbolic variables, namely for linear algebra, mathematic analysis, statistics, algorithmization and georetrine in programming and with the Python programming and syscal Programming       Z       4	Abstract. The cour	(elasticity, plasticity, fracture mechanics, etc.). Principles of statics, kinematics, and dynamics and their application.			
Tension tests, hardness, impact toughness, technological testing, fatigue testing, creep testing. Light microscopy, preparation of specimens for macro- and micro-observation. Casting, forming, welding, soldering, brazing, powder metallurgy, mechanical machining. Copper alloys, aluminium alloys, titanium alloys, special alloys of non-ferrous metals. Technical drawing and CAD.         15CH1       General Chemistry 1       Z       3         The most important concepts, quantities and units used in chemistry are introduced in the course General Chemistry 1. Their significance and practical use are illustrated by examples solved in exercises.       Z,ZK       3         15CH2       General Chemistry 2       Z,ZK       3         The subject is the continuation of the course General chemistry 1. The main attention is paid to general principles governing chemical processes. Using various examples, the fact that the validity of these principles is not restricted only to chemical processes is documented. The significance and practical use of explained principles are illustrated by examples solved in exercises.         17UING       Introduction to Engineering       KZ       3         This course provides introduction to engineering skills. Students should gain general engineering skills at basic level (e.g. material properties and behavior, basics of manu/acturing and production, quality assurance, environmental impacts.). In addition, the introduction to scientific work and technical drawing will be included.         18PMTL       Programming in MATLAB       KZ       4         Introducting and geometric representation of results.       182PRO <t< td=""><td>14ZZKOS</td><td>Testing and processing of metals and allovs</td><td>Z.ZK</td><td>4</td></t<>	14ZZKOS	Testing and processing of metals and allovs	Z.ZK	4	
forming, welding, soldering, brazing, powder metallurgy, mechanical machining. Copper alloys, aluminium alloys, titanium alloys, special alloys of non-ferrous metals. Technical drawing and CAD.         15CH1       General Chemistry 1       Z       3         The most important concepts, quantities and units used in chemistry are introduced in the course General Chemistry 1. Their significance and practical use are illustrated by examples solved in exercises.       Z,ZK       3         15CH2       General Chemistry 2       Z,ZK       3         The subject is the continuation of the course General chemistry 1. The main attention is paid to general principles governing chemical processes. Using various examples, the fact that the validity of these principles is not restricted only to chemical processes is documented. The significance and practical use of explained principles are illustrated by examples solved in exercises.         17UING       Introduction to Engineering       KZ       3         This course provides inroduction on quality assurance, environmental impacts). In addition, the introduction to scientific work and technical drawing will be included.         18PMTL       Programming in MATLAB       KZ       4         Introducing Mattab environment as efficient tool for computation in complex arrays and symbolic variables, namely for linear algebra, mathematic analysis, statistics, algorithmization and geometric representation or results.       4         18PMTL       Programming in MATLAB       KZ       4         18tacouse is intended mainly for students with li	Tension tests, hard	ness, impact toughness, technological testing, fatigue testing, creep testing. Light microscopy, preparation of specimens for macro- a	nd micro-observati	on. Casting,	
and CAD.         15CH1       General Chemistry 1       Z       3         The most important concepts, quantities and units used in chemistry are introduced in the course General Chemistry 1. Their significance and practical use are illustrated by examples solved in exercises.       Solved in exercises.         15CH2       General Chemistry 2       Z,ZK       3         The subject is the continuation of the course General chemistry 1. The main attention is paid to general principles governing chemical processes. Using various examples, the fact that the validity of these principles is not restricted only to chemical processes is documented. The significance and practical use of explained principles are illustrated by examples solved in exercises.         17UING       Introduction to Engineering       KZ       3         This course provides introduction to engineering skills. Students should gain general engineering skills at basic level (e.g. material properties and behavior, basics of manufacturing and production, quality assurance, environmental impacts). In addition, the introduction to scientific work and technical drawing will be included.         18PMTL       Programming in MATLAB       KZ       4         Introducing Mattab environment as efficient tool for computation in complex arrays and symbolic variables, namely for linear algebra, mathematic analysis, statistics, algorithmization and geometric representation of results.       4         18ZPRO       Basics of Programming in MATLAB       Z       4         This course is intended mainly for students with l	forming, welding, s	oldering, brazing, powder metallurgy, mechanical machining. Copper alloys, aluminium alloys, titanium alloys, special alloys of non-fer	rous metals. Techn	ical drawing	
15CH1       General Chemistry 1       Z       3         The most important concepts, quantities and units used in chemistry are introduced in the course General Chemistry 1. Their significance and practical use are illustrated by examples solved in exercises.       50/ed in exercises.         15CH2       General Chemistry 2       Z,ZK       3         The subject is the continuation of the course General chemistry 1. The main attention is paid to general principles governing chemical processes. Using various examples, the fact that the validity of these principles is not restricted only to chemical processes is documented. The significance and practical use of explained principles are illustrated by examples solved in exercises.         17UING       Introduction to Engineering       KZ       3         This course provides introduction to engineering skills. Students should gain general engineering skills at basic level (e.g. material properties and behavior, basics of manufacturing and production, quality assurance, environmental impacts). In addition, the introduction to scientific work and technical drawing will be included.       KZ       4         18PMTL       Programming in MATLAB       KZ       4         Introducing Matlab environment as efficient tool for computation in complex arrays and symbolic variables, namely for linear algebra, mathematic analysis, statistics, algorithmization and geometric representation of results.       Z       4         18ZPRO       Basics of Programming in tamiliarizes the students with the basic concepts in programming and with the Python programming language.       1		and CAD.	_		
The most important concepts, quantities and units used in chemistry are introduced in the course.       Z,ZK       3         15CH2       General Chemistry 2       Z,ZK       3         The subject is the continuation of the course General chemistry I. The main attention is paid to general principles governing chemical processes. Using various examples, the fact that the validity of these principles is not restricted only to chemical processes is documented. The significance and practical use of explained principles are illustrated by examples solved in exercises.         17UING       Introduction to Engineering       KZ       3         This course provides introduction to engineering skills. Students should gain general engineering skills at basic level (e.g. material properties and behavior, basics of manufacturing and production, quality assurance, environmental impacts.). In addition, the introduction to scientific work and technical drawing will be included.         18PMTL       Programming in MATLAB       KZ       4         Introducing Matlab environment as efficient tool for computation in complex arrays and symbolic variables, namely for linear algebra, mathematic analysis, statistics, algorithmization and geometric representation of results.       Z       4         18ZPRO       Basics of Programming. It familiarizes the students with the basic concepts in programming and with the Python programming. It familiarizes the students with the basic concepts in programming and with the Python programming language.         TV-1       Physical Education       Z       1         TV-2       Physic	15CH1	General Chemistry 1		3	
15CH2         General Chemistry 2         Z,ZK         3           The subject is the continuation of the course General chemistry I. The main attention is paid to general principles governing chemical processes. Using various examples, the fact that the validity of these principles is not restricted only to chemical processes is documented. The significance and practical use of explained principles are illustrated by examples solved in exercises.           17UING         Introduction to Engineering         KZ         3           This course provides introduction to engineering skills. Students should gain general engineering skills at basic level (e.g. material properties and behavior, basics of manufacturing and production, quality assurance, environmental impacts). In addition, the introduction to scientific work and technical drawing will be included.           18PMTL         Programming in MATLAB         KZ         4           Introducing Mattab environment as efficient tool for computation in complex arrays and symbolic variables, namely for linear algebra, mathematic analysis, statistics, algorithmization and geometric representation of results.         Z         4           18ZPRO         Basics of Programming         Z         4           This course is intended mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in programming and with the Python programming language.         Z         1           TV-1         Physical Education         Z         1           TV-2         Physical Education         Z	i ne most importan	t concepts, quantities and units used in chemistry are introduced in the course General Chemistry I. Their significance and practical t solved in exercises	ise are illustrated t	by examples	
100112       1 <td>15CH2</td> <td>General Chemistry 2</td> <td>7 7K</td> <td>3</td>	15CH2	General Chemistry 2	7 7K	3	
the validity of these principles is not restricted only to chemical processes is documented. The significance and practical use of explained principles are illustrated by examples solved in exercises.          17UING       Introduction to Engineering       KZ       3         This course provides introduction to engineering skills. Students should gain general engineering skills at basic level (e.g. material properties and behavior, basics of manufacturing and production, quality assurance, environmental impacts,). In addition, the introduction to scientific work and technical drawing will be included.       KZ       4         18PMTL       Programming in MATLAB       KZ       4         Introducing Mattab environment as efficient tool for computation in complex arrays and symbolic variables, namely for linear algebra, mathematic analysis, statistics, algorithmization and geometric representation of results.       Z       4         18ZPRO       Basics of Programming       Z       4         This course is intended mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in programming and with the Python programming language.       Z       1         TV-1       Physical Education       Z       1         TV-2       Physical Education       Z       1         TV-3       Physical education       Z       1         TV-4       Physical education       Z       1	The subject is the	continuation of the course General chemistry I. The main attention is paid to general principles governing chemical processes. Using	various examples,	the fact that	
In exercises.17UINGIntroduction to EngineeringKZ3This course provides introduction to engineering skills. Students should gain general engineering skills at basic level (e.g. material properties and behavior, basics of marufacturing and production, quality assurance, environmental impacts,). In addition, the introduction to scientific work and technical drawing will be included.18PMTLProgramming in MATLABKZ4Introducing Matlab environment as efficient tool for computation in complex arrays and symbolic variables, namely for linear algebra, mathematic analysis, statistics, algorithmization and geometric representation of results.Z418ZPROBasics of ProgrammingZ4This course is intended mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in programming and with the Python programming language.Z1TV-1Physical EducationZ1TV-2Physical EducationZ1TV-3Physical educationZ1TV-4Physical educationZ1	the validity of these	principles is not restricted only to chemical processes is documented. The significance and practical use of explained principles are	illustrated by exam	ples solved	
17UINGIntroduction to EngineeringKZ3This course provides introduction to engineering skills. Students should gain general engineering skills at basic level (e.g. material properties and behavior, basics of manufacturing and production, quality assurance, environmental impacts,). In addition, the introduction to scientific work and technical drawing will be included.KZ418PMTLProgramming in MATLABKZ4Introducing Matlab environment as efficient tool for computation in complex arrays and symbolic variables, namely for linear algebra, mathematic analysis, statistics, algorithmization and geometric representation of results.Z418ZPROBasics of ProgrammingZ4This course is intended mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in program and with the Python programming language.Z1TV-1Physical EducationZ1TV-2Physical EducationZ1TV-3Physical educationZ1TV-4Physical educationZ1		in exercises.			
This course provides introduction to engineering skills. Students should gain general engineering skills at basic level (e.g. material properties and behavior, basics of manufacturing and production, quality assurance, environmental impacts,). In addition, the introduction to scientific work and technical drawing will be included.         18PMTL       Programming in MATLAB       KZ       4         Introducing Matlab environment as efficient tool for computation in complex arrays and symbolic variables, namely for linear algebra, mathematic analysis, statistics, algorithmization and geometric representation of results.       Z       4         18ZPRO       Basics of Programming       Z       4         This course is intended mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in programming and with the Python programming language.       Z       1         TV-1       Physical Education       Z       1         TV-2       Physical Education       Z       1         TV-3       Physical education       Z       1         TV-4       Physical education       Z       1	17UING	Introduction to Engineering	KZ	3	
Introduction, quality assurance, environmental impacts,). In addition, the introduction to scientific work and technical drawing will be included.         18PMTL       Programming in MATLAB       KZ       4         Introducing Matlab environment as efficient tool for computation in complex arrays and symbolic variables, namely for linear algebra, mathematic analysis, statistics, algorithmization and geometric representation of results.       KZ       4         18ZPRO       Basics of Programming       Z       4         This course is intended mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in programming and with the Python programming language.       Z       1         TV-1       Physical Education       Z       1         TV-2       Physical Education       Z       1         TV-3       Physical education       Z       1         TV-4       Physical education       Z       1	This course provid	des introduction to engineering skills. Students should gain general engineering skills at basic level (e.g. material properties and beha	vior, basics of mar	nufacturing	
18PMTLProgramming in MATLABKZ4Introducing Matlab environment as efficient tool for computation in complex arrays and symbolic variables, namely for linear algebra, mathematic analysis, statistics, algorithmization and geometric representation of results.KZ418ZPROBasics of ProgrammingZ4This course is intended mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in programming and with the Python programming language.Z1TV-1Physical EducationZ1TV-2Physical EducationZ1TV-3Physical educationZ1TV-4Physical educationZ1		and production, quality assurance, environmental impacts,). In addition, the introduction to scientific work and technical drawing will b	e included.	4	
Intersection of the complete tion of complete tion of complete tion of complete tion of results.         18ZPRO       Basics of Programming       Z       4         This course is intended mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in programming and with the Python programming language.       Z       1         TV-1       Physical Education       Z       1         TV-2       Physical Education       Z       1         TV-3       Physical education       Z       1         TV-4       Physical education       Z       1         TV-4       Physical education       Z       1         TV-4       Physical education       Z       1	I OPIVI I L	Programming in IVIALLAB	KZ	4 rithmization	
18ZPROBasics of ProgrammingZ4This course is intended mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in programming and with the Python programming language.TV-1Physical EducationZ1TV-2Physical EducationZ1TV-3Physical educationZ1TV-4Physical educationZ1	and occurring mailde	and geometric representation of results.	oio, oranonico, argui	annization	
This course is intended mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in programming and with the Python programming language.         TV-1       Physical Education       Z       1         TV-2       Physical Education       Z       1         TV-3       Physical education       Z       1         TV-4       Physical education       Z       1	18ZPRO	Basics of Programming	Z	4	
programming language.TV-1Physical EducationZ1TV-2Physical EducationZ1TV-3Physical educationZ1TV-4Physical educationZ1	This course is i	ntended mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in program	nming and with the	e Python	
TV-1Physical EducationZ1TV-2Physical EducationZ1TV-3Physical educationZ1TV-4Physical educationZ1		programming language.			
TV-2Physical EducationZ1TV-3Physical educationZ1TV-4Physical educationZ1	TV-1	Physical Education	Z	1	
TV-3Physical educationZ1TV-4Physical educationZ1	TV-2	Physical Education	Z	1	
TV-4 Physical education Z 1	T\/ 2				
	10-3	Physical education	Z	1	

For updated information see <u>http://bilakniha.cvut.cz/en/FF.html</u> Generated: day 2025-07-16, time 17:05.