

Course descriptions

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COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-125/00		Course title: Classical Theory of Radiation			
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 3					
Recommended semester: 1.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: Radiation of the linear antenna, multipole expansion of retarded potentials in the quasistatic and wave region, radiation friction, consistency of classical electrodynamics, the natural width of spectral lines, scattering of electromagnetic waves.					
Recommended literature: L.D.Landau, E.M.Lifschitz: The Classical Theory of Fields, Volume 2 J.D.Jackson: Classical electrodynamics, 3.ed.,1998 V.V.Batygin, I.N.Toptygin: Problems in Electrodynamics, 2.ed., 1978. M.M.Bredov, V.V.Rumiancev, I.N.Toptygin: Klassičeskaja elektrodinamika, 1985					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 30					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: RNDr. Eduard Masár, PhD.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-230/16		Course title: Conformal Field Theory			
Educational activities: Type of activities: lecture Number of hours: per week: 3 per level/semester: 42 Form of the course: on-site learning					
Number of credits: 5					
Recommended semester: 3.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 2					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: Mgr. Michal Širaň, PhD.					
Last change: 04.04.2017					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-129/00		Course title: Connections and Gauge Fields			
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 3					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: Reformulation of the theory of linear connection. Principal fibre bundles, connection on them. Basics of a traditional approach to gauge fields. The interrelation between gauge fields and connections. Action integrals and equations of motion.					
Recommended literature: M.Fecko: Differential geometry and Lie groups for physicists (in Slovak Iris, 2004; soon to be published in English)					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 41					
A	B	C	D	E	FX
92,68	4,88	2,44	0,0	0,0	0,0
Lecturers: doc. RNDr. Marián Fecko, PhD.					
Last change: 04.10.2016					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-213/00		Course title: Cosmology			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 2 / 2 per level/semester: 28 / 28 Form of the course: on-site learning					
Number of credits: 6					
Recommended semester: 3.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: - dynamics of the Universe - physical processes in the early Universe - anisotropies of the cosmic background radiation and the origin of galaxies					
Recommended literature: V. Balek: Kozmológia (prednáška pre 5. roč. ftf), sophia.dtp.fmph.uniba.sk/~balek J. García-Bellido: Astrophysics and Cosmology, hep-ph/0004188					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 29					
A	B	C	D	E	FX
58,62	24,14	10,34	3,45	3,45	0,0
Lecturers: doc. RNDr. Vladimír Balek, CSc.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJFB/2-FJF-236/00		Course title: Detection Methods in High Energy Physics			
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 3					
Recommended semester: 3.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: Detectors for high energy physics. Magnetic spectrometers. Detectors used in colliders. Gas tracking detectors: proportional, drift and streamer chambers. Vertex detectors. Semiconductor and scintillating detectors. Gas coordinat detectors. Metods for particle identification. Measurements of ionization losses in the gas. Čerenkov detectors a hodoscopes. RIČH detectors. Transition radiation detectors. Callorimeters: electromagnetic and hadron.					
Recommended literature: S.Usačev a kol. Experimentálna jadrová fyzika, SNTL, Bratislava, 1982 I.Úlehla, M.Suk, Z.Trka: Atomy, jadra, častice, Academie, Praha, 1990 B.Sitár, G.I.Merzon, V.A.Chechin, Yu.A.Budagov: Ionization measurements in high Energy physics. Springer Verlag, Berlin, Heidelberg, 1993 C.Grupen: Particle detectors. London, 1996.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 30					
A	B	C	D	E	FX
80,0	16,67	0,0	3,33	0,0	0,0
Lecturers: prof. RNDr. Branislav Sitár, DrSc., Mgr. Michal Mereš, PhD.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-115/00		Course title: Differential Equations			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 4 / 2 per level/semester: 56 / 28 Form of the course: on-site learning					
Number of credits: 8					
Recommended semester: 1.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: Qualitative theory of ordinary differential equations, distributions and their properties, Laplace and Fourier transforms of distributions, classical differential equations and their generalized formulation, generalized solutions.					
Recommended literature: P. Bóna, P. Prešnajder, Vybrané kapitoly z matematickej fyziky, (UK Bratislava) A.S. Vladimirov, Rovnice matematickej fyziky (rusky) (Nauka, Moskva, 1976) A. Arsenin, Rovnice matematickej fyziky (Alfa, Bratislava)					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 46					
A	B	C	D	E	FX
82,61	8,7	4,35	2,17	2,17	0,0
Lecturers: Mgr. Michal Širaň, PhD.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-914/15		Course title: Diploma Thesis (1)			
Educational activities: Type of activities: independent work Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 6					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: doc. RNDr. Tomáš Blažek, PhD.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-915/15		Course title: Diploma Thesis (2)			
Educational activities: Type of activities: independent work Number of hours: per week: 6 per level/semester: 84 Form of the course: on-site learning					
Number of credits: 6					
Recommended semester: 3.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 6					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: doc. RNDr. Tomáš Blažek, PhD.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-916/15		Course title: Diploma Thesis (3)			
Educational activities: Type of activities: independent work Number of hours: per week: 14 per level/semester: 196 Form of the course: on-site learning					
Number of credits: 10					
Recommended semester: 4.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 5					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: doc. RNDr. Tomáš Blažek, PhD.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFL.KTFDF/2-FTF-991/15	Course title: Diploma Thesis Defense
Number of credits: 4	
Educational level: II.	
State exam syllabus:	
Last change: 02.06.2015	
Approved by: prof. Ing. Roman Martoňák, DrSc.	

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-921/10		Course title: Diploma Thesis Seminar (1)			
Educational activities: Type of activities: seminar Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 3.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 42					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: doc. RNDr. Vladimír Balek, CSc.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-922/10		Course title: Diploma Thesis Seminar (2)			
Educational activities: Type of activities: seminar Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 49					
A	B	C	D	E	FX
95,92	2,04	2,04	0,0	0,0	0,0
Lecturers: doc. RNDr. Vladimír Balek, CSc.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFL.KEF/2-FTL-108/15	Course title: Electric and Optical Properties of Solid Materials
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 4 / 2 per level/semester: 56 / 28 Form of the course: on-site learning	
Number of credits: 8	
Recommended semester: 2.	
Educational level: II.	
Prerequisites:	
Recommended prerequisites: 2-FOL-117 Introduction to solid state physics	
Course requirements: homeworks + oral exam A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 55/45	
Learning outcomes: The students will understand the impact of defects and interaction effects on electronic properties of solids. They will know basic techniques for band structure determination. They will learn the second quantization method and basics of linear response theory. They will understand what kind of information on solids can be gained by optical methods.	
Class syllabus: Band structure of silicon. Semiclassical dynamics of electrons. Hall effect and cyclotron resonance. de Haas-van Alphen effect. Quantum Hall effect. Influence of disorder on electronic states. Anderson localization in one-dimensional wires. Many-body problem and the Hartree-Fock approximation. Second quantization. Coulomb gas of electrons. The Wigner, Mott, and Hubbard metal-insulator transition. Electron-phonon coupling. Dielectric function. Clausius-Mossotti formula and polarization catastrophe. Linear response theory. Interband transitions, excitons. Luminescence and the Franck-Condon effect. Scattering of light. Photoemission.	
Recommended literature: Condensed matter physics : Corrected printing / Michael P. Marder. New York : John Wiley, 2000	
Languages necessary to complete the course: english	
Notes:	

Past grade distribution					
Total number of evaluated students: 17					
A	B	C	D	E	FX
58,82	5,88	11,76	5,88	17,65	0,0
Lecturers: doc. RNDr. Richard Hlubina, DrSc.					
Last change: 18.10.2016					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-233/13		Course title: English Conversation Course (1)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1., 3.					
Educational level: I., II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
Learning outcomes:					
Class syllabus: The content of the course is general English. The language level is B2/C1 (Upper-Intermediate/Lower Advanced).					
Recommended literature: Selection of materials from Inside Out Upper-Intermediate, Cutting Edge Upper-Intermediate, New English File Upper-Intermediate, British and American newspapers and journals Recordings: authentic and semi-authentic (source: BBC, CNN, coursebook recordings)					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 135					
A	B	C	D	E	FX
58,52	18,52	9,63	2,22	1,48	9,63
Lecturers: PhDr. Elena Klátiková					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KJP/1-MXX-234/13		Course title: English Conversation Course (2)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2., 4.					
Educational level: I., II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
Learning outcomes:					
Class syllabus: The course is a follow-up to the Conversation Course in English (1). The content of the course is general English. The language level is B2/C1 (Upper-Intermediate/Lower Advanced).					
Recommended literature: Selection of materials from Inside Out Upper-Intermediate, Cutting Edge Upper-Intermediate, New English File Upper-Intermediate, British and American newspapers and journals Recordings: authentic and semi-authentic (source: BBC, CNN, coursebook recordings)					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 62					
A	B	C	D	E	FX
67,74	19,35	4,84	0,0	0,0	8,06
Lecturers: PhDr. Elena Klátiková					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KJP/1-MXX-141/00		Course title: French Language (1)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: I., II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: French language is taught at two levels: beginner and intermediate. Students opt for one of them depending on whether they wish to obtain the fundamentals of the language or wish to maintain and/or improve previous knowledge of French.					
Recommended literature: Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 374					
A	B	C	D	E	FX
39,84	22,19	21,66	10,16	2,14	4,01
Lecturers: Mgr. Pavel Vilášek, Mgr. Ľubomíra Kožehubová					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-142/00		Course title: French Language (2)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2.					
Educational level: I., II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: The subject continues the program of French language (1) and provides courses of essential and intermediate French language.					
Recommended literature: Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2 Blažena Srncová: Učebnica francúzštiny pre študentov Matematicko-fyzikálnej fakulty , UK 1983 Kolektív Lingea, s.r.o.: Slovensko-francúzsky hovorník, Bratislava 2008					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 237					
A	B	C	D	E	FX
34,18	27,85	21,52	11,39	2,53	2,53
Lecturers: Mgr. Pavel Vilášek, Mgr. Ľubomíra Kožehubová					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-241/00		Course title: French Language (3)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 3.					
Educational level: I., II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: The subject provides a course of intermediate French language, covering not only general, but also technical language.					
Recommended literature: Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2 Blažena Srncová: Učebnica francúzštiny pre študentov Matematicko-fyzikálnej fakulty , UK 1983 Kolektív Lingea, s.r.o.: Slovensko-francúzsky hovorník, Bratislava 2008					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 93					
A	B	C	D	E	FX
33,33	30,11	23,66	7,53	1,08	4,3
Lecturers: Mgr. Pavel Vilášek, Mgr. Ľubomíra Kožehubová					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-242/00		Course title: French Language (4)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: I., II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: The subject provides a course of intermediate French covering not only general, but also technical French language.					
Recommended literature: Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2 Blažena Srncová: Učebnica francúzštiny pre študentov Matematicko-fyzikálnej fakulty , UK 1983 Kolektív Lingea, s.r.o.: Slovensko-francúzsky hovorník, Bratislava 2008 Zarha Lahmidi: Sciences-techniques.com, ISBN 209-0331186-0, CLE international, 2005					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 63					
A	B	C	D	E	FX
31,75	38,1	20,63	3,17	1,59	4,76
Lecturers: Mgr. Pavel Vilášek, Mgr. Ľubomíra Kožehubová					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-117/00		Course title: General Relativity			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 3 / 2 per level/semester: 42 / 28 Form of the course: on-site learning					
Number of credits: 7					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: - Curved spacetime, derivation of Einstein equations and their geometrical meaning - Exact solutions of the equations: expanding Universe and cosmological models, spherically symmetric stars and black holes - Linearized gravitation, gravitational waves - Consequences of the positivity of energy: enlargement of black hole horizons, existence of singularities in spacetime					
Recommended literature: Ch. W. Misner, K. S. Thorne, J. A. Wheeler: Gravitation, W. H. Freeman and Comp., San Francisco (1973)					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 35					
A	B	C	D	E	FX
34,29	31,43	25,71	5,71	2,86	0,0
Lecturers: doc. RNDr. Vladimír Balek, CSc.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-130/00		Course title: Geometrical Methods in Classical Mechanics			
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 3					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: Fibre bundles in general. Tangent and cotangent bundles and differential geometry on them. Application of this knowledge to the global description of classical mechanics. Symmetries and conservation laws.					
Recommended literature: M.Fecko: Differential geometry and Lie groups for physicists (in Slovak Iris, 2004; soon to be published in English)					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 35					
A	B	C	D	E	FX
91,43	2,86	5,71	0,0	0,0	0,0
Lecturers: doc. RNDr. Marián Fecko, PhD.					
Last change: 04.10.2016					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-151/00		Course title: German Language (1)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: I., II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: German language is taught at three levels: beginner, intermediate and advanced. Students opt for one of them depending on whether they need to learn the fundamentals or maintain and/or improve their previous knowledge.					
Recommended literature: Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 648					
A	B	C	D	E	FX
31,94	29,17	21,3	10,03	2,93	4,63
Lecturers: Mgr. Pavel Vilášek, Mgr. Alexandra Maďarová					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-152/00		Course title: German Language (2)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2.					
Educational level: I., II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: The course continues the program of German language (1). German language is taught at three levels: beginner, intermediate, advanced.					
Recommended literature: Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 408					
A	B	C	D	E	FX
29,17	22,06	23,77	14,95	3,68	6,37
Lecturers: Mgr. Pavel Vilášek, Mgr. Alexandra Maďarová					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-251/00		Course title: German Language (3)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 3.					
Educational level: I., II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: The subject continues the program of German language (2). It provides a course of intermediate and advanced German language.					
Recommended literature: Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe. Aus moderner Technik und Naturwissenschaft, 1999, Max Hueber Verlag, D-85737, ISBN 3-19-001629-1					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 148					
A	B	C	D	E	FX
38,51	27,03	22,3	6,76	2,7	2,7
Lecturers: Mgr. Pavel Vilášek, Mgr. Alexandra Maďarová					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-252/00		Course title: German Language (4)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: I., II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: The subject continues the program of German language (3). It provides a course of intermediate and advanced German language.					
Recommended literature: Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe. Vilma Václavíková: Nemčina pre študentov MFF UK, Vysokoškolský učebný text pre potrebu študentov KJP, č. 9793/1982 C VIII/2, 1983					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 78					
A	B	C	D	E	FX
35,9	28,21	14,1	12,82	3,85	5,13
Lecturers: Mgr. Pavel Vilášek, Mgr. Alexandra Maďarová					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-135/10		Course title: Introduction to Elementary Particle Physics			
Educational activities: Type of activities: lecture Number of hours: per week: 3 per level/semester: 42 Form of the course: on-site learning					
Number of credits: 5					
Recommended semester: 1.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 7					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: prof. RNDr. Anna Dubníčková, DrSc.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-128/00		Course title: Introduction to String Theory			
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 3					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: - classical bosonic string - action, equations of motion, constraints - the light-cone gauge - mass spectrum of the string and the restriction of the number of dimensions					
Recommended literature: B. Zwiebach: A First Course in String Theory, Cambridge University Press, Cambridge (2004)					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 19					
A	B	C	D	E	FX
89,47	10,53	0,0	0,0	0,0	0,0
Lecturers: doc. RNDr. Vladimír Balek, CSc.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FTL-203/15		Course title: Magnetic Properties of Solid Substances and Superconductivity			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 4 / 2 per level/semester: 56 / 28 Form of the course: on-site learning					
Number of credits: 8					
Recommended semester: 3.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 12					
A	B	C	D	E	FX
83,33	0,0	8,33	8,33	0,0	0,0
Lecturers: doc. RNDr. Michal Mahel', CSc.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FTL-205/15		Course title: Many-body Physics			
Educational activities: Type of activities: lecture Number of hours: per week: 4 per level/semester: 56 Form of the course: on-site learning					
Number of credits: 6					
Recommended semester: 3.					
Educational level: II.					
Prerequisites: FMFI.KEF/2-FTL-108/15 - Electric and Optical Properties of Solid Materials					
Recommended prerequisites: 2-FTL-107 Structure and mechanical properties of solids 2-FTL-108 Electronic and optical properties of solids					
Course requirements: oral exam: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 0/100					
Learning outcomes: The students will have a deeper understanding of the notions vacuum and elementary excitation. They will understand how spontaneous symmetry breaking and its defects determine physical properties of condensed matter.					
Class syllabus: Spontaneous symmetry breaking, generalized rigidity, Goldstone modes, topological defects. Quantum magnetism. Superfluidity: basic experimental facts, properties of condensate, Bogoliubov theory. Superconductivity: basic experimental facts, effective model, BCS theory.					
Recommended literature: Statistical mechanics : Entropy, order parameters, and complexity / James P. Sethna. Oxford : Oxford University Press, 2006 Condensed matter physics : Corrected printing / Michael P. Marder. New York : John Wiley, 2000					
Languages necessary to complete the course: english					
Notes:					
Past grade distribution Total number of evaluated students: 9					
A	B	C	D	E	FX
55,56	11,11	22,22	0,0	11,11	0,0
Lecturers: doc. RNDr. Richard Hlubina, DrSc.					

Last change: 18.10.2016
Approved by: prof. Ing. Roman Martoňák, DrSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KTFDF/2-FTF-112/15		Course title: Mathematical Physics (2)			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 4 / 2 per level/semester: 56 / 28 Form of the course: on-site learning					
Number of credits: 8					
Recommended semester: 1.					
Educational level: II.					
Prerequisites:					
Antirequisites: FMFI.KTFDF/2-FTF-112/00					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 8					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: doc. RNDr. Marián Fecko, PhD.					
Last change: 04.10.2016					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FTL-224/15		Course title: Mesoscopic Physics and Quantum Electronics			
Educational activities: Type of activities: lecture Number of hours: per week: 4 per level/semester: 56 Form of the course: on-site learning					
Number of credits: 6					
Recommended semester: 3.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 10					
A	B	C	D	E	FX
50,0	30,0	20,0	0,0	0,0	0,0
Lecturers: doc. RNDr. Martin Moško, DrSc.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KTFDF/2-FTF-132/10		Course title: Methods in Computer Physics			
Educational activities: Type of activities: lecture Number of hours: per week: 3 per level/semester: 42 Form of the course: on-site learning					
Number of credits: 5					
Recommended semester: 1.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 29					
A	B	C	D	E	FX
89,66	6,9	0,0	0,0	0,0	3,45
Lecturers: RNDr. Eduard Masár, PhD.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-121/00		Course title: Methods of Functional Integral in Physics			
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 3					
Recommended semester: 1.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: Functional integral in stochastic processes, quantum mechanics, quantum field theories with bosons and fermions and in quantum statistics.					
Recommended literature: M. Chaichian, P. Demichev, Path integrals in physics (Inst. of Physics, Bristol, 2002) L:D: Faddeev, A.A. Slavnov, Introduction to quantum theory of gauge fields (Benjamin-Cummings, Reading, Mass. 1980) V. N. Popov, Functional integrals in quantum field theory and statistical Physics (Gordon and Breach, Amsterdam, (1988)					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 44					
A	B	C	D	E	FX
79,55	18,18	2,27	0,0	0,0	0,0
Lecturers: prof. Ing. Milan Noga, DrSc.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-131/00		Course title: Methods of Mathematical Physics			
Educational activities: Type of activities: lecture Number of hours: per week: 3 per level/semester: 42 Form of the course: on-site learning					
Number of credits: 5					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: Elements of topology. Locally convex spaces and their duals. Banach and Hilbert spaces. Elements of C*-algebras and their representations. Motivations from quantum theory. Functional calculi for normal elements of a C*-algebra and normal operators. Spectral theorem in projector-valued measure form. Classifications of measures and spectra of operators. Applications to dynamical systems.					
Recommended literature: Selected parts of the books: M.A.Najmark: Normirovannyje koľca (Eng.: Normed rings); P. Bóna a P. Prešnajder: Vybrané kapitoly z matem. fyziky 2. (Eng.: Selected chapters in mathematical physics 2.); M.Reed a B.Simon: Methods of mathematical physics; J.Blank, P.Exner a M.Havlíček: Lineární operátory v kvantové fyzice. (Eng.:Linear Operators in Quantum Physics.) P.Walters: An introduction to ergodic theory. (Or alternative sources.) + texts provided by the lecturer					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 6					
A	B	C	D	E	FX
50,0	16,67	33,33	0,0	0,0	0,0
Lecturers: doc. RNDr. Pavel Bóna, CSc.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJFB/2-FJF-125/00		Course title: Modelling Experimental Set-Ups			
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 3					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: Basic terms of the probability theory and mathematical statistics. Important distributions. General scheme of Monte Carlo methods. Sampling of distribution functions. Specific methods for sampling of irregular distributions. Stochastic processes. Imitation of physical process. Structure of transport equation for hadronic and elektromagnetic cascade. Solution of transport equation using Monte Carlo. Basic scheme of GEANT package. Definition of materials, medii, geometry of experiment. Volume, subvolume and their positioning. Detector response. Storing of information in data structure. Simulated physical processes and their control. Passage of particle through volume, detector and set. GEANT data struktures. Graphics. Interactive GEANT.					
Recommended literature: A. Rényi, Teorie pravdepodobnosti, ACADEMIA, Praha 1972 J. Spanier, E.M. Gebard, Monte Carlo principles and Neutron transport Problems, Edison Wesley Pub. Comp., Massachusetts 1969. S.M. Jermakov, Metod Monte Carlo i smezhnyje voprosy, Nauka Moskva 1975 R. Brun et al., GEANT-CERN Program Library D506					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 21					
A	B	C	D	E	FX
90,48	4,76	4,76	0,0	0,0	0,0
Lecturers: prof. RNDr. Stanislav Tokár, DrSc.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJFB/2-FJF-132/00		Course title: Particle Accelerators			
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 3					
Recommended semester: 1.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: What for we need accelerators. Linear electrostatic accelerators. Linear resonance accelerators. Cyclic accelerators: cyclotron, fazotron, microtron, betatron, synchrotron, synchrofazotron. Strong focusation. Description of particle trajectories in the accelerator, stability condition. Extracted beams. Colliding beams. Accelerating and acumulating facilities. Colliders. Beam cooling techniques. Aplication of acceleators in different fields of science, medicine and industry.					
Recommended literature: S.Usačev a kol. Experimentálna jadrová fyzika, SNTL, Bratislava, 1982 I.Úlehla, M.Suk, Z.Trka: Atomy, jadra, častice, Academie, Praha, 1990					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 66					
A	B	C	D	E	FX
54,55	31,82	13,64	0,0	0,0	0,0
Lecturers: prof. RNDr. Branislav Sitár, DrSc.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTV/2-MXX-110/00		Course title: Physical Education and Sport (1)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: Practicing of the students' game skills in collective sports: basketball, volleyball, football, floorball and hockey. Mastering of the basic technique of a particular sport discipline in other sports. In paddling, basic training on still and slightly flowing water. Development of coordination skills, improvement of articular mobility and cardiovascular system.					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 1329					
A	B	C	D	E	FX
99,1	0,6	0,0	0,0	0,0	0,3
Lecturers: PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický, doc. PhDr. Vojtech Potočný, CSc., Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KTV/2-MXX-120/00		Course title: Physical Education and Sport (2)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: Practicing of offensive and defensive game combinations and playing with modified rules in collective sports such as basketball, volleyball, football, floorball, hockey. Command of elements of higher difficulty in locomotion skills (swimming - crawl stroke, breast stroke, butterfly stroke, trampoline jumping and aerobics – practicing of areobics compositions, bodybuilding – development of the main muscle groups, paddling on running water. Testing of the level of physical fitness and coordination skills.					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 1223					
A	B	C	D	E	FX
99,84	0,08	0,0	0,0	0,0	0,08
Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Branislav Nedbálek, PaedDr. Mikuláš Ortutay, Mgr. Ondrej Podkonický, doc. PhDr. Vojtech Potočný, CSc., Mgr. Júlia Raábová, PhD.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTV/2-MXX-210/00		Course title: Physical Education and Sport (3)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 3.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: To improve offensive and defensive game combinations in collective sports. Practicing of tactical and technical elements in individual sports. Compensatory exercises to correct wrong body posture. Stretching. Competition rules in sport disciplines.					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 992					
A	B	C	D	E	FX
99,4	0,4	0,0	0,0	0,0	0,2
Lecturers: PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický, doc. PhDr. Vojtech Potočný, CSc., Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTV/2-MXX-220/00		Course title: Physical Education and Sport (4)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: Sport training for Faculty Championships in a selected sport with modified rules. Selection of sport-talented students into teams of the Faculty Sport League, University League of Bratislava Faculties, and participation in sport events of the Faculty and University.					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 868					
A	B	C	D	E	FX
99,31	0,46	0,0	0,0	0,12	0,12
Lecturers: PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický, doc. PhDr. Vojtech Potočný, CSc., Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, Mgr. Branislav Nedbálek					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-224/10		Course title: Physics Beyond the Standard Model			
Educational activities: Type of activities: lecture Number of hours: per week: 3 per level/semester: 42 Form of the course: on-site learning					
Number of credits: 5					
Recommended semester: 3.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 17					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: doc. RNDr. Tomáš Blažek, PhD.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KTFDF/2-FTF-116/00		Course title: Quantum Electrodynamics			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 4 / 2 per level/semester: 56 / 28 Form of the course: on-site learning					
Number of credits: 8					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: - theory of free electron-positron and electromagnetic field - Feynman diagrams in QED - electron-positron annihilation to muons and Compton scattering					
Recommended literature: V. B. Berestekii, E. M. Lifshitz, L. P. Pitajevskii: Kvantovaia elektrodinamika, Nauka, Moskva (1980) [English translation: Oxford, Pergamon Press (1982)] J. Formánek: Kvantová teorie I, II, III, UK, Praha (1986)					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 49					
A	B	C	D	E	FX
95,92	4,08	0,0	0,0	0,0	0,0
Lecturers: prof. RNDr. Peter Prešnajder, DrSc., doc. RNDr. Martin Mojžiš, PhD.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KTFDF/2-FTF-113/00		Course title: Quantum Field Theory			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 4 / 2 per level/semester: 56 / 28 Form of the course: on-site learning					
Number of credits: 8					
Recommended semester: 1.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: 1. introduction 2. Free field 3. Interacting fields 4. Funktional methods					
Recommended literature: M.Mojžiš, Quantum Field Theory (elektronické štúdijné materiály) M.E.Peskin and D.V.Schroeder: An Introduction to Quantum Field Theory					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 83					
A	B	C	D	E	FX
66,27	19,28	8,43	0,0	6,02	0,0
Lecturers: doc. RNDr. Martin Mojžiš, PhD.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KTFDF/2-FTF-228/15		Course title: Quantum Theory of Information			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 2 / 1 per level/semester: 28 / 14 Form of the course: on-site learning					
Number of credits: 5					
Recommended semester: 3.					
Educational level: II.					
Prerequisites:					
Antirequisites: FMFI.KTFDF/2-FTF-228/12					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 1					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: doc. Mgr. Mário Ziman, PhD., Mgr. Daniel Nagaj, PhD.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KTFDF/2-FTF-227/15		Course title: Quantum Theory of Measurement			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 2 / 1 per level/semester: 28 / 14 Form of the course: on-site learning					
Number of credits: 5					
Recommended semester: 1.					
Educational level: II.					
Prerequisites:					
Antirequisites: FMFI.KTFDF/2-FTF-227/12					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 4					
A	B	C	D	E	FX
75,0	25,0	0,0	0,0	0,0	0,0
Lecturers: doc. Mgr. Mário Ziman, PhD.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-127/00		Course title: Renormalization			
Educational activities: Type of activities: lecture Number of hours: per week: 3 per level/semester: 42 Form of the course: on-site learning					
Number of credits: 5					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: I. renormalization without infinities 1. tree level summary 2. loop effects propagators vertices II. renormalization and infinities 1. calculation of loop integrals 2. applications					
Recommended literature: M.Mojžiš, Renormalization					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 43					
A	B	C	D	E	FX
93,02	4,65	2,33	0,0	0,0	0,0
Lecturers: doc. RNDr. Martin Mojžiš, PhD.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KTFDF/2-FTF-111/16		Course title: Representations of Groups			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 4 / 1 per level/semester: 56 / 14 Form of the course: on-site learning					
Number of credits: 7					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 3					
A	B	C	D	E	FX
33,33	0,0	0,0	33,33	33,33	0,0
Lecturers: Mgr. Michal Širaň, PhD.					
Last change: 04.04.2017					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KJP/1-MXX-161/00		Course title: Russian Language (1)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: I., II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: The subject provides a course in Russian language for beginners.					
Recommended literature: The textbook has not been published. It is at students' disposal in an electronic format.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 642					
A	B	C	D	E	FX
60,9	16,2	9,66	4,83	1,71	6,7
Lecturers: PhDr. Elena Klátiková					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-162/00		Course title: Russian Language (2)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2.					
Educational level: I., II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: The subject continues the program of Russian language (1) and provides a course of Russian for beginners.					
Recommended literature: The textbook has not been published. It is at students' disposal in an electronic format.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 389					
A	B	C	D	E	FX
65,81	16,2	9,0	3,34	1,03	4,63
Lecturers: PhDr. Elena Klátiková					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KJP/1-MXX-261/00		Course title: Russian Language (3)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 3.					
Educational level: I., II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: The course "Russian for Intermediate Students" is a follow-up to "Russian for Beginners". The subject of the course is general Russian in the range appropriate to the given level.					
Recommended literature: The textbook has not been published. It is at students' disposal in an electronic format.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 191					
A	B	C	D	E	FX
70,68	17,28	8,38	2,62	0,0	1,05
Lecturers: PhDr. Elena Klátiková					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KJP/1-MXX-262/00		Course title: Russian Language (4)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: I., II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: The course "Russian for Intermediate Students" is a follow-up to "Russian for Beginners". The subject of the course is general Russian in the range appropriate to the given level.					
Recommended literature: The textbook has not been published. It is at students' disposal in an electronic format.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 130					
A	B	C	D	E	FX
73,85	13,85	7,69	3,08	0,77	0,77
Lecturers: PhDr. Elena Klátiková					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-133/10		Course title: Selected Methods in Computer Physics			
Educational activities: Type of activities: seminar Number of hours: per week: 3 per level/semester: 42 Form of the course: on-site learning					
Number of credits: 5					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 14					
A	B	C	D	E	FX
85,71	7,14	0,0	0,0	7,14	0,0
Lecturers: RNDr. Eduard Masár, PhD.					
Last change:					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-114/00		Course title: Selected Parts of Advanced Statistical Physics			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 4 / 2 per level/semester: 56 / 28 Form of the course: on-site learning					
Number of credits: 8					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: Mathematical statistics, elements of information theory, general formalism of quantum statistical physics, numerical methods, variation principles, phase transitions, spin models, kinetic equations, transport phenomena, theory of fluctuations, random processes.					
Recommended literature: F.Reif:Fundamentals of statistical and thermal physics F.Čulík, M.Noga: Úvod do štatistickej fyziky a termodynamiky					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 79					
A	B	C	D	E	FX
67,09	30,38	0,0	0,0	2,53	0,0
Lecturers: doc. RNDr. Vladimír Černý, CSc.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-225/10		Course title: Selected Topics in Quantum Physics			
Educational activities: Type of activities: lecture Number of hours: per week: 3 per level/semester: 42 Form of the course: on-site learning					
Number of credits: 5					
Recommended semester: 4.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 8					
A	B	C	D	E	FX
87,5	0,0	0,0	0,0	0,0	12,5
Lecturers: doc. RNDr. Tomáš Blažek, PhD.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-136/17		Course title: Selected Topics in Theory of Relativity			
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 3					
Recommended semester: 1.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 10					
A	B	C	D	E	FX
80,0	10,0	0,0	0,0	0,0	10,0
Lecturers: Mgr. Peter Maták, PhD.					
Last change: 22.03.2017					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTV/1-MXX-115/15		Course title: Sports in Nature (1)			
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2.					
Educational level: I., II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 171					
A	B	C	D	E	FX
99,42	0,0	0,58	0,0	0,0	0,0
Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický					
Last change: 25.05.2016					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTV/1-MXX-115/15		Course title: Sports in Nature (1)			
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: I., II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 171					
A	B	C	D	E	FX
99,42	0,0	0,58	0,0	0,0	0,0
Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický					
Last change: 25.05.2016					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTV/1-MXX-215/15		Course title: Sports in Nature (2)			
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: I., II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 94					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický					
Last change: 25.05.2016					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTV/1-MXX-215/15		Course title: Sports in Nature (2)			
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 3.					
Educational level: I., II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 94					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický					
Last change: 25.05.2016					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTFDF/2-FTF-212/16		Course title: Standard Model			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 4 / 1 per level/semester: 56 / 14 Form of the course: on-site learning					
Number of credits: 7					
Recommended semester: 3.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 5					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: doc. RNDr. Martin Mojžiš, PhD.					
Last change:					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FTL-107/15		Course title: Structure and Mechanical Properties of Solids			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 4 / 2 per level/semester: 56 / 28 Form of the course: on-site learning					
Number of credits: 8					
Recommended semester: 1.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 24					
A	B	C	D	E	FX
66,67	12,5	8,33	8,33	4,17	0,0
Lecturers: prof. Ing. Roman Martoňák, DrSc., Mgr. Dušan Plašienka, PhD.					
Last change: 02.06.2015					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFL.KTFDF/2-FTF-954/15	Course title: Theoretical Physics
Number of credits: 4	
Educational level: II.	
State exam syllabus:	
Last change: 02.06.2015	
Approved by: prof. Ing. Roman Martoňák, DrSc.	

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KTFDF/2-FTF-231/17		Course title: Topological Methods in Theoretical Physics			
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning					
Number of credits: 3					
Recommended semester: 4.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 0					
A	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0
Lecturers: Mgr. Michal Širaň, PhD.					
Last change: 02.05.2017					
Approved by: prof. Ing. Roman Martoňák, DrSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFLKEF/2-FTL-110/15		Course title: Use of Computer Simulations in Condensed-matter Physics			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 3 / 3 per level/semester: 42 / 42 Form of the course: on-site learning					
Number of credits: 8					
Recommended semester: 1.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 12					
A	B	C	D	E	FX
66,67	16,67	8,33	8,33	0,0	0,0
Lecturers: prof. RNDr. Peter Markoš, DrSc., doc. Mgr. Jozef Kristek, PhD., prof. Ing. Roman Martoňák, DrSc.					
Last change: 12.09.2016					
Approved by: prof. Ing. Roman Martoňák, DrSc.					