

Course descriptions

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COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/2-FOL-217/15	Course title: Analysis of Surfaces and thin Layers Using Electromagnetic Radiation
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 3.	
Educational level: II.	
Prerequisites:	
Course requirements: Final assessment: Exam: oral, Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 0/100	
Learning outcomes: The student will learn the basics of characterization of material surfaces and thin films using IR / NIR / VIS / UV / soft- and hard X-ray.	
Class syllabus: Overview of experimental techniques for the analysis of surfaces and thin layers of materials using electromagnetic radiation. The lecture will be an introduction to the following experimental techniques: spectroscopic and imaging ellipsometry, optical profilometry, dynamic and static scattering, confocal Raman / fluorescence microscopy, X-ray reflectometry and scattering. Comparison with touch techniques of surface analysis. Finally, I will introduce techniques of surface modification by laser radiation. The lecture will include practical demonstrations of the above experimental techniques at the Institute of Physics of the Slovak Academy of Sciences.	
Recommended literature: Gamma- and X-Ray spectrometry with semiconductor detectors / Klaus Debertin, Richard G. Helmer. Amsterdam: Elsevier, 1988 Molecular spectra and molecular structure: volume 2: Infrared and raman spectra of polyatomic molecules / Gerhard Herzberg. New York: D. Van Nostrand Company, 1949 • Selection of current articles from the area	
Languages necessary to complete the course: English	
Notes:	

Past grade distribution					
Total number of evaluated students: 12					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: doc. RNDr. Tomáš Roch, Dr. techn., Dr. rer. nat. Peter Šiffalovič, PhD.					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/2-FOL-113/15	Course title: Atomic and Molecular Structure
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 2 / 1 per level/semester: 26 / 13 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 1.	
Educational level: II.	
Prerequisites:	
Antirequisites: FMFI.KEF/2-FOL-113/00	
Course requirements: Continuous assessment: individual work Exam: oral Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 40/60	
Learning outcomes: After completing the course, the student will have the theoretical foundations of optical spectroscopy of atoms and diatomic molecules. They will learn to interpret basic atomic electron spectra and molecular vibrational spectra.	
Class syllabus: Atom structure, atomic spectra. Structure and symmetry of molecules. Molecular orbitals, LCAO. Rotational-vibrational structure of a diatomic molecule, quantum numbers and energy levels - harmonic oscillator, anharmonic oscillator, Morse potential, rigid rotor, flexible vibrating rotor. IR and Raman molecular spectra, intensities in rotational-vibrational spectra. Electron states and electron transitions - potential curves, vibrational structure, rotational structure, Franck-Condon principle, classification of electron states, multiplets, Hund cases, selection rules, allowed transitions, forbidden transitions, perturbations, Zeeman and Stark phenomenon, hyperfine structure. Synthetic molecular spectra.	
Recommended literature: Molecular spectroscopy / Zuzana Chorvátová. Bratislava: Comenius University, 1987 Kolebanija molekula / M. V. Volkenštejn ... [et al.]. Moscow: Science, 1972 Molecular vibrational / rotational / spectra / Dušan Papoušek, Mamed Ragimovich Aliev. Prague: Academia, 1982	
Languages necessary to complete the course: English	
Notes:	

Past grade distribution					
Total number of evaluated students: 28					
A	B	C	D	E	FX
78,57	10,71	3,57	7,14	0,0	0,0
Lecturers: doc. Dr. Alicia Marín Roldán, Matej Veis					
Last change: 18.02.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/2-FOL-116/15	Course title: Basic Electronics
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 3 / 3 per level/semester: 39 / 39 Form of the course: on-site learning	
Number of credits: 7	
Recommended semester: 1.	
Educational level: I., II.	
Prerequisites:	
Course requirements: Continuous assessment: work on practical exercises (100%). The condition for granting credits is the presentation of a semester project. Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 100/0	
Learning outcomes: The student will understand the principles of using basic building blocks (resistor, inductance, capacitance, diode, transistor) in digital and analog circuits. They will understand the principles and use of basic digital and analog circuits (gates, counters, timers, operational amplifier, A / D and D / A converters, Arduino microprocessor system), principles of generating harmonic and non-harmonic signals and linear and pulse power supplies. They will be able to analyze basic circuits and use them to design simple electronic circuits with the required functionality. He will also gain practical experience with the construction and revitalization of simple electronic circuits.	
Class syllabus: Semiconductor diode and transistor and their basic connections. Transistor in switching mode, TTL digital circuits and their use. Basic logic circuits. Comparator. Timer 555. D / A and A / D converters. Arduino microprocessor system. Nodal potential method. Analysis of linear circuits in time and frequency domain. Linear model of transistor and operational amplifier. Basic circuits with operational amplifier. Positive feedback and oscillator principles. Power supplies and rectifiers.	
Recommended literature: The art of electronics / Paul Horowitz, Winfield Hill. New York : Cambridge University Press, 1989	
Languages necessary to complete the course: English	
Notes:	

Past grade distribution					
Total number of evaluated students: 101					
A	B	C	D	E	FX
95,05	0,0	3,96	0,0	0,0	0,99
Lecturers: doc. RNDr. František Kunderacik, CSc., RNDr. Matej Klas, PhD., doc. RNDr. Juraj Országh, PhD.					
Last change: 27.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-231/00		Course title: Design of Optical Systems			
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 3					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements: Continuous assessment: homework Examination: oral examination Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 70/30					
Learning outcomes: The student will gain an overview of the basic principles accompanying the design of optical systems and an overview of available software used for this purpose. He will also gain knowledge about the properties of materials for optics and their impact on optical systems.					
Class syllabus: Optical design - principles and general procedure. Basic optical systems and devices, apertures, optical aberrations. Design of some specific optical systems using software. Measurement and control of basic parameters of optical systems. Commercial software (OSLO).					
Recommended literature: Svetlo: Vlny, lúče, fotóny / Anton Štrba, Vladimír Mesároš, Dagmar Senderáková. Nitra : Enigma, 2011 Modern Optical Engineering (The design of Optical Systems) / Warren J. Smith. McGraw-Hill Education; 4th edition 2007					
Languages necessary to complete the course: English					
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: doc. Mgr. Peter Čermák, PhD.					

Last change: 18.02.2022
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-914/15		Course title: Diploma Thesis (1)			
Educational activities: Type of activities: independent work Number of hours: per week: 2 per level/semester: 26 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: 21					
A	B	C	D	E	FX
95,24	0,0	4,76	0,0	0,0	0,0
Lecturers: prof. RNDr. Pavel Veis, CSc.					
Last change: 02.06.2015					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-915/15		Course title: Diploma Thesis (2)			
Educational activities: Type of activities: independent work Number of hours: per week: 4 per level/semester: 52 Form of the course: on-site learning					
Number of credits: 4					
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: 21					
A	B	C	D	E	FX
90,48	0,0	0,0	9,52	0,0	0,0
Lecturers: prof. RNDr. Pavel Veis, CSc.					
Last change: 02.06.2015					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-916/15		Course title: Diploma Thesis (3)			
Educational activities: Type of activities: independent work Number of hours: per week: 6 per level/semester: 78 Form of the course: on-site learning					
Number of credits: 6					
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: 21					
A	B	C	D	E	FX
90,48	9,52	0,0	0,0	0,0	0,0
Lecturers:					
Last change: 02.06.2015					
Approved by:					

STATE EXAM DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/2-FOL-991/15	Course title: Diploma Thesis Defense
Number of credits: 10	
Educational level: II.	
Course requirements: Exam: oral Scale of assessment (preliminary/final): 0/100	
Learning outcomes: The result of successful completion of the state subject will be the defense of the diploma thesis. By completing this course, the student will demonstrate the ability of scientific work under the guidance of a supervisor, the ability to solve problems in the field of laser physics, optics and optical spectroscopy, present them to the professional public and defend the results.	
Class syllabus: After the elaboration of the diploma thesis under the guidance of the thesis supervisor, the student submits it and prepares for the defense. They will get acquainted with the opinions of the opponents on their work and will prepare the defense of the diploma thesis and the answers to the opponents' questions. After the defense of the diploma thesis before the commission, he answers the comments and questions from the reviews, he participates in the discussion about the meaning and main results of his work.	
State exam syllabus:	
Languages necessary to complete the course: English	
Last change: 18.02.2022	
Approved by:	

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-921/15		Course title: Diploma Thesis Seminar (1)			
Educational activities: Type of activities: seminar Number of hours: per week: 1 per level/semester: 13 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: 22					
A	B	C	D	E	FX
86,36	4,55	4,55	0,0	0,0	4,55
Lecturers: prof. RNDr. Pavel Veis, CSc., doc. Dr. Alicia Marín Roldán					
Last change: 02.06.2015					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-922/15		Course title: Diploma Thesis Seminar (2)			
Educational activities: Type of activities: seminar Number of hours: per week: 1 per level/semester: 13 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: 4					
A	B	C	D	E	FX
75,0	0,0	0,0	0,0	25,0	0,0
Lecturers: doc. RNDr. Mário Janda, PhD., doc. Dr. Alicia Marín Roldán					
Last change: 02.06.2015					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FTL-115/15		Course title: Electronic Components and Circuits			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 4 / 2 per level/semester: 52 / 26 Form of the course: on-site learning					
Number of credits: 8					
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: 47					
A	B	C	D	E	FX
55,32	29,79	8,51	4,26	2,13	0,0
Lecturers: doc. RNDr. František Kunderacik, CSc., doc. RNDr. Michal Mahel', CSc., prof. RNDr. Andrej Plecenik, DrSc.					
Last change: 02.06.2015					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAI/2-MXX-130/21		Course title: Elements of AI			
Educational activities: Type of activities: independent work Number of hours: per week: 25 per level/semester: 325 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements: Passing the online course https://course.elementsofai.com/ (in English or Slovak version).					
Learning outcomes: The student will get acquainted with selected basic concepts of artificial intelligence and their use in solving various practical tasks.					
Class syllabus: 1. What is artificial intelligence: related areas, AI philosophy. 2. Troubleshooting and UI: Browsing and troubleshooting, browsing and games 3. Probability and chance, Bayes' theorem, naive Bayesian classification. 4. Machine learning: nearest neighbor classifier, regression. 5. Neural networks: basics, creation, modern techniques. 6. Consequences: on predicting the future, the effects of AI on society, summary.					
Recommended literature: Russell S., Norwig P. (2010). Artificial Intelligence: A Modern Approach, (3rd ed.), Prentice Hall. Available in faculty library. Marsland S. (2015). Machine Learning: An Algorithmic Perspective, (2nd ed.), CRC Press.					
Languages necessary to complete the course: Slovak or English					
Notes: The course consists of 20 numerical and 5 text-based tasks. Numerical tasks are checked automatically, text-based tasks are evaluated anonymously by students.					
Past grade distribution Total number of evaluated students: 37					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: doc. RNDr. Mária Markošová, PhD.					

Last change: 22.08.2021
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAI/2-MXX-130/21		Course title: Elements of AI			
Educational activities: Type of activities: independent work Number of hours: per week: 25 per level/semester: 325 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: II.					
Prerequisites:					
Course requirements: Passing the online course https://course.elementsofai.com/ (in English or Slovak version).					
Learning outcomes: The student will get acquainted with selected basic concepts of artificial intelligence and their use in solving various practical tasks.					
Class syllabus: 1. What is artificial intelligence: related areas, AI philosophy. 2. Troubleshooting and UI: Browsing and troubleshooting, browsing and games 3. Probability and chance, Bayes' theorem, naive Bayesian classification. 4. Machine learning: nearest neighbor classifier, regression. 5. Neural networks: basics, creation, modern techniques. 6. Consequences: on predicting the future, the effects of AI on society, summary.					
Recommended literature: Russell S., Norwig P. (2010). Artificial Intelligence: A Modern Approach, (3rd ed.), Prentice Hall. Available in faculty library. Marsland S. (2015). Machine Learning: An Algorithmic Perspective, (2nd ed.), CRC Press.					
Languages necessary to complete the course: Slovak or English					
Notes: The course consists of 20 numerical and 5 text-based tasks. Numerical tasks are checked automatically, text-based tasks are evaluated anonymously by students.					
Past grade distribution Total number of evaluated students: 37					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: doc. RNDr. Mária Markošová, PhD.					

Last change: 22.08.2021
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University 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: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1., 3.					
Educational level: I., II.					
Prerequisites:					
Course requirements: tests, presentations, essays Course prerequisites: https://fmph.uniba.sk/microsites/kjp/katedra-jazykovej-pripravy/poziadavky-na-udelenie-priebezhneho-hodnotenia-aj1aj2aj3-ostatne-kurzy/ Scale of assessment (preliminary/final): 100/0					
Learning outcomes: Continual improvement of all language skills focused on communication/speaking, listening comprehension and writing. The emphasis is on discourse, lexicology and morphology, word-bank broadening of communicational English as well as English for specific purposes appropriate for university students. This course is a follow up of the previously taught ESP course.					
Class syllabus: This course's focus is to broaden spoken/communicational English for students with B2/C1 level of English knowledge.					
Recommended literature: Appropriate study material is supplied based on the participants' level of English by the lecturer. (Sources- The Guardian, The Herald Morning Sun. The Nine News, The West Australian, BBC News and podcasts, CNN podcasts).					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 215					
A	B	C	D	E	FX
67,44	13,02	6,51	1,86	1,4	9,77
Lecturers: Mgr. Aneta Barnes					

Last change: 21.06.2022
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.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: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2., 4.					
Educational level: I., II.					
Prerequisites:					
Course requirements: tests, oral presentations, essays Course prerequisites: https://fmph.uniba.sk/microsites/kjp/katedra-jazykovej-pripravy/poziadavky-na-udelenie-priebezhneho-hodnotenia-aj1aj2aj3-ostatne-kurzy/ Scale of assessment (preliminary/final): 100/0					
Learning outcomes: Continual improvement of all language skills focused on communication/speaking, listening comprehension and writing. The emphasis is on discourse, lexicology and morphology, word-bank broadening of communicational/spoken English as well as English for specific purpose appropriate for university students. This course is a follow up of the Conversational English course 1.					
Class syllabus: This course's focus is to broaden spoken/communicational English for students with B2/C1 level of English knowledge(Upper-Intermediate/Lower Advanced).					
Recommended literature: Appropriate study material is supplied based on the participants'level of English by the lecturer. (Sources- The Guardian, The Herald Morning Sun. The Nine News, The West Australian, BBC News and podcasts, CNN podcasts).					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 146					
A	B	C	D	E	FX
77,4	12,33	3,42	1,37	0,0	5,48
Lecturers: Mgr. Aneta Barnes					

Last change: 21.06.2022
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-225/15		Course title: Experimental Methods in Optics and Spectroscopy			
Educational activities: Type of activities: lecture / course Number of hours: per week: 3 / 3 per level/semester: 39 / 39 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: 30					
A	B	C	D	E	FX
90,0	3,33	3,33	3,33	0,0	0,0
Lecturers: doc. RNDr. Karol Hensel, PhD.					
Last change: 02.06.2015					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.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: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: I., II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
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: Capelle Guy, Menand Robert: Le Nouveau taxi 1, Hachette FLE Paris, France 2009, ISBN 978-2-01-155548 - 9					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 435					
A	B	C	D	E	FX
45,75	20,0	18,85	8,74	2,3	4,37
Lecturers: Mgr. Ľubomíra Kožehubová					
Last change: 20.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.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: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2.					
Educational level: I., II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
Learning outcomes:					
Class syllabus: The subject continues the program of French language (1) and provides courses of essential and intermediate French language.					
Recommended literature: Capelle Guy, Menand Robert: Le Nouveau taxi 1, Hachette FLE Paris, France 2009, ISBN 978-2-01-155548 - 9					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 265					
A	B	C	D	E	FX
38,87	25,28	19,62	10,19	2,64	3,4
Lecturers: Mgr. Ľubomíra Kožehubová					
Last change: 20.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University 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: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 3.					
Educational level: I., II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
Learning outcomes:					
Class syllabus: The subject provides a course of intermediate French language, covering not only general, but also technical language.					
Recommended literature: Capelle Guy, Menand Robert: Le Nouveau taxi 1, Hachette FLE Paris, France 2009, ISBN 978-2-01-155548 - 9					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 104					
A	B	C	D	E	FX
39,42	27,88	21,15	6,73	0,96	3,85
Lecturers: Mgr. Ľubomíra Kožehubová					
Last change: 20.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University 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: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: I., II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
Learning outcomes:					
Class syllabus: The subject provides a course of intermediate French covering not only general, but also technical French language.					
Recommended literature: Menand Robert: Le Nouveau taxi 2, Hachette FLE, Paris, France 2009, ISBN 978-2-01-155551 - 9					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 74					
A	B	C	D	E	FX
41,89	32,43	17,57	2,7	1,35	4,05
Lecturers: Mgr. Ľubomíra Kožehubová					
Last change: 20.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/2-FOL-110/09	Course title: Fundamentals of Laser Spectroscopy
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 3.	
Educational level: II.	
Prerequisites:	
Course requirements: Exam: oral Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 0/100	
Learning outcomes: After completing the course, the student will have knowledge of several laser spectroscopic methods and their advantages over classical spectroscopic methods. He will know in which applications these methods can be used.	
Class syllabus: Comparison of classical and absorption spectroscopic methods, explanation of why it is advantageous to use a laser. Absorption path extension, optical resonator. Laser - in terms of its usability in spectroscopy. Intercavity laser induced spectroscopy (ICLAS). Cavity enhanced absorption spectroscopy (CEAS). Pulsed-CRDS. Continuous wave CRDS (CW-CRDS). Laser induced fluorescence spectroscopy (LIF). Two-photon absorption laser induced fluorescence (TALIF). Laser photoionization spectroscopy (FIS). Laser Raman spectroscopy (LRS). Coherent-Antistokes Raman Scattering (CARS). Thomson scattering and use for plasma diagnostics.	
Recommended literature: Laserová spektroskopia / Zuzana Chorvátová. Bratislava : Univerzita Komenského, 1992 Laser spectroscopy : Basic concepts and instrumentation / Wolfgang Demtröder. Berlin : Springer, 1981 Optics and lasers : Including fibers and optical waveguides / Matt Young. Berlin : Springer, 2000	
Languages necessary to complete the course: English	
Notes:	

Past grade distribution					
Total number of evaluated students: 18					
A	B	C	D	E	FX
77,78	22,22	0,0	0,0	0,0	0,0
Lecturers: doc. RNDr. Mário Janda, PhD., prof. RNDr. Pavel Veis, CSc.					
Last change: 18.02.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University 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: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: I., II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
Learning outcomes: To master the fundamentals of the common language and basic technical terms of particular fields of study (depending on the student's level of German proficiency)					
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. This course's focus is to master the fundamentals of the common language and basic technical terms of particular fields of study (depending on the student's level of German proficiency)					
Recommended literature: Appropriate study material is supplied by teacher based on the participants'level of German proficiency.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 734					
A	B	C	D	E	FX
36,1	27,25	19,62	8,99	2,72	5,31
Lecturers: Mgr. Alexandra Maďarová, Mgr. Simona Tomášková, PhD.					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University 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: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2.					
Educational level: I., II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
Learning outcomes: To master the fundamentals of the common language and basic technical terms of particular fields of study (depending on the student's level of German proficiency)					
Class syllabus: German 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 German. This course's focus is to to master the fundamentals of the common language and basic technical terms of particular fields of study (depending on the student's level of German proficiency)					
Recommended literature: Appropriate study material is supplied by teacher based on the participants'level of German proficiency					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 480					
A	B	C	D	E	FX
36,04	20,21	20,83	13,13	3,33	6,46
Lecturers: Mgr. Alexandra Maďarová, Mgr. Simona Tomášková, PhD.					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University 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: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 3.					
Educational level: I., II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
Learning outcomes: Master the basics of general language and basic professional terminology of individual fields of study (depending on the advanced level of students)					
Class syllabus: The course is a follow-up to the German language (1,2). The subject provides a course of intermediate or advanced German language. This course's focus is to deepen the knowledge of the common language and basic technical terms of particular fields of study (depending on the student's level of German proficiency).					
Recommended literature: Appropriate study material is supplied by teacher based on the participants' level of German proficiency.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 165					
A	B	C	D	E	FX
41,21	25,45	20,61	6,67	2,42	3,64
Lecturers: Mgr. Alexandra Maďarová, Mgr. Simona Tomášková, PhD.					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University 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: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: I., II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
Learning outcomes: Master the basics of general language and basic professional terminology of individual fields of study (depending on the advanced level of students)					
Class syllabus: The course is a follow-up to the German language (1-3). It provides a course of intermediate and advanced German language. This course's focus is to deepen the knowledge of the common language and basic technical terms of particular fields of study (depending on the student's level of German proficiency).					
Recommended literature: Appropriate study material is supplied by teacher based on the participants' level of German proficiency.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 90					
A	B	C	D	E	FX
42,22	24,44	12,22	12,22	3,33	5,56
Lecturers: Mgr. Alexandra Maďarová, Mgr. Simona Tomášková, PhD.					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-108/00		Course title: Holography and Interferometry			
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 3					
Recommended semester: 4.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: Physical principles and a brief overview of classical interferometry methods. Physical basics and experimental condition of the holographic method. Various kinds of holograms and their properties. The basic difference between classical and holographic interferometry. Holographic interferometry – basic methods and advantages. Interferometry of transparent objects. Sensitivity of the holographic method. Interferometry of surfaces. Abramson's method. Holographic topography. Holographic interferometric defectoscopy. Laser speckle utilisation in interferometry.					
Recommended literature: M.Miler: Holografie, SNTL, Praha, 1974 J.Balas, V.Szabo: Holografická interferometria v experimentálnej technike, Bratislava, 1986 Caulfield H.J.: Handbook of Optical Holography (Optičeskaja golografija, Mir, Moskva 1982) Vest Ch.M.: Holographic Interferometry (Golografičeskaja interferometrija, Mir, Moskva 1982) Specialised journals and publications					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 74					
A	B	C	D	E	FX
52,7	22,97	18,92	1,35	4,05	0,0
Lecturers: doc. RNDr. Vladimír Mesároš, CSc.					
Last change: 02.06.2015					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/1-FYZ-452/18		Course title: Introduction to Solid State Physics			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 4 / 2 per level/semester: 52 / 26 Form of the course: on-site learning					
Number of credits: 7					
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: 22					
A	B	C	D	E	FX
50,0	4,55	18,18	13,64	9,09	4,55
Lecturers: doc. RNDr. Richard Hlubina, DrSc.					
Last change: 19.01.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-107/00		Course title: Laboratory Practical in Optics			
Educational activities: Type of activities: laboratory practicals Number of hours: per week: 3 per level/semester: 39 Form of the course: on-site learning					
Number of credits: 3					
Recommended semester: 1.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: Coherence length. Holographic optical elements. Properties of a solid state laser. Laser picosecond spectroscopy. Transfer properties of optical fibres. Second harmonic generation. Parametric generation.					
Recommended literature: Literature recommended to the subjects “Laser Physics” and “Wave Optics”. Manuals or technical documentation to the experimental systems used.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 60					
A	B	C	D	E	FX
65,0	23,33	5,0	5,0	0,0	1,67
Lecturers: RNDr. Ján Greguš, PhD., RNDr. Zuzana Zábudlá, RNDr. Pavel Vojtek, CSc., doc. Mgr. Peter Čermák, PhD.					
Last change: 02.06.2015					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/2-FOL-237/15	Course title: Laser Applications, Processes and Diagnostics
Educational activities: Type of activities: lecture Number of hours: per week: 3 per level/semester: 39 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 2.	
Educational level: II.	
Prerequisites:	
Antirequisites: FMFI.KEF/2-FOL-237/09	
Course requirements: Continuous assessment: test Exam: oral Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 40/60	
Learning outcomes: After completing the lecture, the student should be acquainted with issues of the latest trends in laser-assisted production and modification of materials.	
Class syllabus: Use of lasers for surface analysis. Laser ablation in combination with inductively coupled plasmas (LA ICP MS, LA ICP OES). Laser-induced spark spectroscopy and its use. Micro-Raman spectroscopy (composition determination, surface determination temperatures from the ratios of Stokes and anti-Stokes spectra). Use of lasers for surface treatment (etching, PLD deposition). Use of lasers in metallurgy. Thermal, photophysical and photochemical processes. Reaction kinetics and particle transport. Atomization and formation of clusters. Surface melting processes. Material evaporation and plasma formation processes. Material deposition. Transformation and synthesis material, creation of structures. Measurement and diagnostic techniques.	
Recommended literature: Laser spectroscopy : Basic concepts and instrumentation / Wolfgang Demtröder. Berlin : Springer, 1981 Svetlo : Vlny, lúče, fotóny / Anton Štrba, Vladimír Mesároš, Dagmar Senderáková. Nitra : Enigma, 2011 Selection of current articles from the area.	

Languages necessary to complete the course: english					
Notes:					
Past grade distribution Total number of evaluated students: 9					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: doc. Dr. Alicia Marín Roldán					
Last change: 17.02.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-233/00		Course title: Laser Technique			
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 3					
Recommended semester: 3.					
Educational level: II.					
Prerequisites:					
Course requirements: Continuous assessment: calculation of examples Exam: project processing Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 100/0					
Learning outcomes: The student will master the basic principles of design of optical quantum generators and amplifiers.					
Class syllabus: Optical resonators, mirrors and dispersive elements of optical resonators. Methods of laser radiation forming. Specificity of different types of lasers (gas, solid state, diode). Methods to shorten laser pulses. Utilisation of lasers in science, industry and medicine.					
Recommended literature: Wilson J., Hawkes J. F. B., Lasers principles and applications, Prentice-hall, N. Jersey 1987 P. Engst, Horák M., Aplikace laserů, SNTL, Praha 1989 specialised journals					
Languages necessary to complete the course: English					
Notes:					
Past grade distribution Total number of evaluated students: 17					
A	B	C	D	E	FX
94,12	0,0	0,0	0,0	5,88	0,0
Lecturers: RNDr. Pavel Vojtek, CSc.					
Last change: 18.02.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/2-FOL-239/15	Course title: Laser-generated Plasma
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 2.	
Educational level: II.	
Prerequisites:	
Antirequisites: FMFI.KEF/2-FOL-239/09	
Course requirements: Continuous assessment: individual work Exam: oral Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 50/50	
Learning outcomes: The student will gain knowledge in the field of laser-generated plasma, the accuracy and possibilities of using laser-generated spark and its spectroscopy.	
Class syllabus: Laser-generated plasma, history, laser-generated spark spectrophy (LIBS), laser ablation of solids using femto, pico and nano-second lasers, qualitative elemental analysis using LIBS, atomic constants database, trace element detection using LIBS, detection limits (LOD), options sensitivity increases - two-pulse LIBS, LIBS in vacuum UV range, laser ablation in combination with low pressure electric discharge (LA ICP OES), quantitative LIBS - method of calibration-free CF LIBS, calculation of electron concentration and temperature, self-absorption correction, Saha Boltzmann L diagram, (CCD, CMOS, iCCD, EM CCD), possibilities of resolution and detection of stable isotopes by LIBS, molecular emission spectroscopy by LIBS. LIBS applications (biomedical, pharmaceutical, chemical, geological ...).	
Recommended literature: Optics and lasers : Including fibers and optical waveguides / Matt Young. Berlin : Springer, 2000 Principles of laser plasmas / Edited by George Bekefi. New York : John Wiley, 1976 Laser spectroscopy : Basic concepts and instrumentation / Wolfgang Demtröder. Berlin : Springer, 1981 Selection of current articles from the area.	
Languages necessary to complete the course: english	

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: prof. RNDr. Pavel Veis, CSc., doc. Dr. Alicia Marín Roldán					
Last change: 18.02.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJFB/2-FOL-219/15		Course title: Lasers and Optical Fibers in Medicine			
Educational activities: Type of activities: lecture Number of hours: per week: 3 per level/semester: 39 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 3.					
Educational level: II.					
Prerequisites:					
Antirequisites: FMFI.KJFB/2-FBM-235/00					
Course requirements: Continuous assessment: test Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 100/0					
Learning outcomes: After completing the course, students will be able to work in the fields of laser spectroscopy and fiber optics and apply them in biomedicine.					
Class syllabus: Basic concepts of light. Basic properties of laser radiation: monochromaticity, coherence, polarization. Basic types of lasers. Optical properties of tissues. Thermal properties of tissues. Biophysical mechanisms of action of laser radiation. Biochemical and biological effects. Photochemical effects of lasers on tissues. Thermal effects of lasers on tissues. Non-thermal effects of lasers on tissues and nonlinear effects. Light guides. Indications and contraindications for the use of lasers in medicine.					
Recommended literature: Laser-Tissue Interactions : Fundamentals and Applications / Markolf H. Niemz. Berlin : Springer, 2004					
Languages necessary to complete the course: English					
Notes:					
Past grade distribution Total number of evaluated students: 4					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: prof. RNDr. Libuša Šikurová, CSc., RNDr. Dušan Chorvát, PhD.
Last change: 18.02.2022
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/2-FOL-202/13	Course title: Light Scattering by Small Particles
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 3.	
Educational level: II.	
Prerequisites:	
Course requirements: Continuous assessment: test Examination: written, oral Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 100/0	
Learning outcomes: The student will gain basic knowledge of the theory of electromagnetic interaction of radiation with particles of any size, shape and composition as they commonly occur in real conditions, the optical response of such a system with emphasis on applications in astronomy, meteorology, but also laboratory diagnostics.	
Class syllabus: Basic principles of light scattering by small particles. Solution of wave equation for spherical particles - Mie's theory. Decomposition into spherical accordions. Scattering matrix, coherence, phase and extinction matrix. Polydisperse system of dispersing particles. Light scattering by non-spherical particles. Basic principles of the T-matrix method. Approximation by discrete dipoles. Calculation methods (DDSCAT), examples. Build your own model. Some applications in astrophysics and atmospheric optics	
Recommended literature: General physics: 3: optics / Anton Štrba. Bratislava: Alfa, 1979 Theory of the electromagnetic field / Milan Noga. Bratislava: Comenius University, 2005 Electromagnetism / Andrej Tirpák. Bratislava: Polygrafia SAV, 1999	
Languages necessary to complete the course: English	
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: Mgr. Miroslav Kocifaj, DrSc.					
Last change: 18.02.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-109/00		Course title: Nonlinear Optics			
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 3					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements: Continuous assessment: counting examples Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 100/0					
Learning outcomes: The student will gain knowledge of the basics of the theory of nonlinear optical phenomena. He will know the possibilities of using these phenomena in determining opt. properties of substances and in laser physics.					
Class syllabus: Phenomenological theory of nonlinear susceptibility. Tensor of nonlinear susceptibility. Kleiman's relations. Electromagnetic waves in nonlinear media. Quadratic and cubic nonlinear optical phenomena.					
Recommended literature: Shen Y. R., The Principles of Nonlinear Optics, J. Willey and Sons, Inc. 1984 Chmela P., Úvod do nelineární optiky I, UP Olomouc 1982 Bahaa E. A. Saleh, Teich M. C., Základy fotoniky, Matfyzpress, Praha 1996					
Languages necessary to complete the course: English					
Notes:					
Past grade distribution Total number of evaluated students: 21					
A	B	C	D	E	FX
66,67	23,81	9,52	0,0	0,0	0,0
Lecturers: doc. RNDr. Vladimír Mesároš, CSc.					
Last change: 18.02.2022					

Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-215/15		Course title: Optical Spectroscopy			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 2 / 1 per level/semester: 26 / 13 Form of the course: on-site learning					
Number of credits: 4					
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: 28					
A	B	C	D	E	FX
64,29	35,71	0,0	0,0	0,0	0,0
Lecturers: prof. RNDr. Pavel Veis, CSc., doc. RNDr. Mário Janda, PhD.					
Last change: 02.06.2015					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-115/15		Course title: Optics and Lasers			
Educational activities: Type of activities: lecture Number of hours: per week: 3 per level/semester: 39 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: 30					
A	B	C	D	E	FX
50,0	23,33	10,0	6,67	10,0	0,0
Lecturers: doc. RNDr. Vladimír Mesároš, CSc., prof. RNDr. Pavel Veis, CSc.					
Last change: 02.06.2015					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-234/00		Course title: Optics of Thin Layers			
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 3					
Recommended semester: 3.					
Educational level: II.					
Prerequisites:					
Course requirements: Continuous assessment: calculation of examples Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 50/50					
Learning outcomes: Passing the course will enable the student to master the theory and methods of calculation of thin film systems.					
Class syllabus: Fresnel relations and their analysis. Thin and thick layer. Thin layer on a glass. Calculating of a thin layers system reflectivity and transmittivity. Alternating layers and a matrix method of reflectivity calculation. Utilisation of thin layers in optical and laser systems.					
Recommended literature: Vašíček A., Optika tenkých vrstev, Nakl. ČSAV, Praha 1956 Haus H. A., Waves and fields in optoelectronics, Prentice-Hall, N. Jersey 1984 Müllerová J., Spektrofotometria tenkých vrstiev, SES, Liptovský Mikuláš 2004					
Languages necessary to complete the course: English					
Notes:					
Past grade distribution Total number of evaluated students: 14					
A	B	C	D	E	FX
85,71	14,29	0,0	0,0	0,0	0,0
Lecturers: prof. RNDr. Anton Štrba, CSc.					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-208/15		Course title: Photonics			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 2 / 1 per level/semester: 26 / 13 Form of the course: on-site learning					
Number of credits: 4					
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
60,0	0,0	20,0	0,0	0,0	20,0
Lecturers: RNDr. Milan Držík, CSc., prof. RNDr. Peter Markoš, DrSc., prof. RNDr. Pavel Veis, CSc., Ing. Matej Pisarčík, PhD.					
Last change: 02.06.2015					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University 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: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
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: Slovak, English					
Notes:					
Past grade distribution Total number of evaluated students: 1657					
A	B	C	D	E	FX
98,37	0,6	0,06	0,0	0,0	0,97
Lecturers: PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, PhD., Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek, Mgr. Tomáš Lovecký					
Last change: 15.03.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.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: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
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: Slovak, English					
Notes:					
Past grade distribution Total number of evaluated students: 1557					
A	B	C	D	E	FX
98,52	0,39	0,06	0,06	0,06	0,9
Lecturers: Mgr. Martin Dovičák, PhD., Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Branislav Nedbálek, PaedDr. Mikuláš Ortutay, Mgr. Júlia Raábová, PhD., Mgr. Tomáš Lovecký					
Last change: 15.03.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University 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: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 3.					
Educational level: II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
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: Slovak, English					
Notes:					
Past grade distribution Total number of evaluated students: 1281					
A	B	C	D	E	FX
98,75	0,47	0,08	0,0	0,0	0,7
Lecturers: PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, PhD., Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek, Mgr. Tomáš Lovecký					
Last change: 15.03.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.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: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
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: Slovak, English					
Notes:					
Past grade distribution Total number of evaluated students: 1110					
A	B	C	D	E	FX
98,47	0,45	0,09	0,09	0,09	0,81
Lecturers: PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, PhD., Mgr. Branislav Nedbálek, Mgr. Júlia Raábová, PhD., Mgr. Tomáš Lovecký					
Last change: 15.03.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-101/15		Course title: Physics of Lasers			
Educational activities: Type of activities: lecture Number of hours: per week: 3 per level/semester: 39 Form of the course: on-site learning					
Number of credits: 5					
Recommended semester: 1.					
Educational level: II.					
Prerequisites:					
Antirequisites: FMFI.KEF/2-FOL-101/00					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 81					
A	B	C	D	E	FX
76,54	12,35	6,17	1,23	3,7	0,0
Lecturers: Mgr. Michaela Horňáčková, PhD., prof. RNDr. Pavel Veis, CSc., doc. RNDr. Vladimír Mesároš, CSc., doc. Dr. Alicia Marín Roldán					
Last change: 02.06.2015					
Approved by:					

STATE EXAM DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/2-FOL-955/15	Course title: Physics of Lasers and Optical Spectroscopy
Number of credits: 6	
Educational level: II.	
Course requirements: Exam: oral Scale of assessment (preliminary/final): 0/100	
Learning outcomes: The result of successful completion of the state subject will be the completion of the state final exam.	
Class syllabus: The state final exam of the study program Optics, Lasers and Optical Spectroscopy consists of two areas: 1) issues in the field of laser physics: construction, characteristics and principle of operation of lasers, laser technology and laser applications 2) range of questions from optical spectroscopy: structure of atoms and molecules, principles of spectroscopy, laser spectroscopy and use of spectroscopic methods	
State exam syllabus:	
Recommended literature: Laser spectroscopy: Basic concepts and instrumentation / Wolfgang Demtröder. Berlin: Springer, 1981 Light: Waves, rays, photons / Anton Štrba, Vladimír Mesároš, Dagmar Senderáková. Nitra: Enigma, 2011	
Languages necessary to complete the course: English	
Last change: 18.02.2022	
Approved by:	

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/2-FFP-101/15	Course title: Plasma Physics (1)
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 2 / 1 per level/semester: 26 / 13 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 1.	
Educational level: II.	
Prerequisites:	
Course requirements: Exam: written test and oral exam. Grading scale: A 90%, B 80%, C 70%, D 60%, E 50%. Scale of assessment (preliminary/final): 0/100	
Learning outcomes: The students will gain fundamental knowledge on plasma physics. They will understand significance and relations of the basic plasma parameters. They will be able to mathematically formulate and solve basic problems in plasma physics, especially in low temperature plasmas.	
Class syllabus: Debye-Hückel theory of charge shielding, quasi-neutrality of plasma, plasma frequency. Mobility of charged particles in gases. Fluid model of plasma, momentum transfer equation. Diffusion of charged particles in gases. Conductivity of plasma in stationary and alternating electric field. Plasma permittivity, propagation of electromagnetic waves in plasma. Plasma-wall interactions, ambipolar diffusion, Shottky theory, electric sheath. Generation of plasma. Saha equation. Townsend discharge. Paschen law. Types of self-sustained discharges. Langmuir probe. Introduction to controlled thermonuclear reaction.	
Recommended literature: Yu. P. Raizer: Gas Discharge Physics, Springer, 1997. Michael A. Lieberman, Allan J. Lichtenberg: Principles of plasma discharges and material processing, Wiley, 1994. J. A. Bittencourt: Fundamentals of Plasma Physics, Springer, New York, 2004.	
Languages necessary to complete the course: english	
Notes:	

Past grade distribution					
Total number of evaluated students: 31					
A	B	C	D	E	FX
45,16	19,35	16,13	6,45	3,23	9,68
Lecturers: prof. Dr. Štefan Matejčík, DrSc., Mgr. Michal Stano, PhD.					
Last change: 02.02.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/2-FOL-112/15	Course title: Plasma Radiation
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 2.	
Educational level: II.	
Prerequisites:	
Course requirements: Exam: oral Approximate grade scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 20/80	
Learning outcomes: Extension of knowledge in the field of plasma physics, the importance of the study of plasma radiation for diagnostic and application goals. The student will gain theoretical knowledge in the field of formation and propagation of radiation in plasma, the interaction of radiation with plasma and the principles of spectroscopic methods in plasma, which can be used in practice in optical diagnostics of plasma.	
Class syllabus: Introduction to the plasma radiation, the importance of the study of optical methods, el-mag. spectrum, basic concepts. Thermodynamic equilibrium in plasma. Conditions for the existence of thermodynamic equilibrium. Local thermodynamic equilibrium (LTE). Collisional processes - their impact on the occupancy of energy levels. Interaction of radiation with plasma. Transitions between discrete energy levels. Einstein coefficients. Bound-free transition (photoionization). Free-bound (recombination with radiation). Free-free transition (absorption and emission in the continuum - bremsstrahlung). Transport of radiation from inside the plasma beyond its borders. Radiation transfer equation. Solution of the radiation transfer equation in LTE. Spectral line profile, broadening of spectral lines in plasma. Combined effects on profiles. Utilization of radiation in plasma. Identification of radiating atoms and molecules. Fundamentals of molecular spectroscopy. Continuous spectrum. Continuous spectrum diagnostics. Measurement methods, experimental technique. Basic requirements of the experiment, radiation detectors, accessories.	
Recommended literature: Methods of experimental Physics / n Volume 9 : Plasma Physics Part B / Edited by: Hans R. Griem, Ralph H. Lovberg. New York : Academic Press, 1971 J. Michael Hollas: Modern Spectroscopy, John Wiley, 2004 G. V. Marr: Plasma Spectroscopy, Elsevier, 1968	

Electronic texts of the lecturers. Current articles from the area.					
Languages necessary to complete the course: english					
Notes:					
Past grade distribution Total number of evaluated students: 29					
A	B	C	D	E	FX
93,1	3,45	3,45	0,0	0,0	0,0
Lecturers: doc. RNDr. Anna Zahoranová, PhD., doc. RNDr. Mário Janda, PhD., doc. RNDr. Veronika Medvecká, PhD.					
Last change: 30.01.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/2-FOL-111/15	Course title: Principles and Methods of Applied Optics
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 4.	
Educational level: II.	
Prerequisites:	
Antirequisites: FMFI.KEF/2-FOL-111/00	
Course requirements: Exam: oral Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 0/100	
Learning outcomes: After completing the course, the student will master the basic principles of advanced methods of applied optics and get acquainted with new trends in their development.	
Class syllabus: Digitization and processing of optical signal. Computer-aided methods for increasing the sensitivity of optical measurements. Homodyne, heterodyne and synchronous optical signal detection. Phase visualization of the optical field. Light diffraction in sensing deformation, dimensional distribution of particles and periodic structures. Correlation analysis of speckle structures and temporal / spatial course of optical signals. Moiré effect applications. Synthesized aperture in interferometry and optical transmission function. Optical localization of points on the surface of bodies, 3-D visualization. Micro and nanometrology using optical principles. Detection and visualization of the velocity field in liquids and gases.	
Recommended literature: Optical signal processing: Fundamentals / Pankaj K. Das. Berlin: Springer, 1991 Optics and lasers: Including fibers and optical waveguides / Matt Young. Berlin: Springer, 2000 Technical optics / Gottfried Schröder; translated from the German original by Zdeněk Berger. Prague: Státní nakladatelství technické literatury, 1981	
Languages necessary to complete the course: English	
Notes:	

Past grade distribution					
Total number of evaluated students: 20					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: RNDr. Milan Držík, CSc.					
Last change: 18.02.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.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: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: I., II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
Learning outcomes: Basic communication in Russian, developing other Russian language skills - listening comprehension, reading and writing.					
Class syllabus: To master the fundamentals of general Russian. The language level is A1. Learning the Cyrillic (Russian) alphabet, gaining basic language competence, building up skills and confidence in dealing with unfamiliar authentic and semi-authentic texts. The subject provides a course in Russian language for beginners.					
Recommended literature: The textbook: : Точка Ру А1 (Ольга Долматова, Екатерина Новачац), pracovné karty Падежи 1 (Л.С. Безкоровайная, В.Е. ШТЫЛЕНКО).					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 707					
A	B	C	D	E	FX
58,56	16,55	11,03	4,38	1,84	7,64
Lecturers: Viktoria Mirsalova					
Last change: 20.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University 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: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2.					
Educational level: I., II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
Learning outcomes: Basic communication in Russian, developing other Russian language skills - listening comprehension, reading and writing.					
Class syllabus: To master the fundamentals of general Russian. Learning the Cyrillic (Russian) alphabet, gaining basic language competence, building up skills and confidence in dealing with unfamiliar authentic and semi-authentic texts. The subject continues the program of Russian language (1) and provides a course of Russian for beginners.					
Recommended literature: Textbook: Точка Ру А1 (Ольга Долматова, Екатерина Новачац), pracovné karty Падежи 1 (Л.С. Безкорвайная, В.Е. Штыленко).					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 421					
A	B	C	D	E	FX
65,08	15,68	8,79	3,8	0,95	5,7
Lecturers: Viktoria Mirsalova					
Last change: 20.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.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: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 3.					
Educational level: I., II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
Learning outcomes: Basic communication in Russian, developing other Russian language skills - listening comprehension, reading and writing.					
Class syllabus: Learning the handwritten Russian (Russian Cursive Cyrillic), developing further language skills, gaining knowledge of Russian culture, history and way of life, pre-intermediate to intermediate grammar and vocabulary. 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: Точка Ру А2 (Ольга Долматова, Екатерина Новачац) а Short Stories in Russian (Olly Richards, Alex Rowlings)					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 200					
A	B	C	D	E	FX
70,5	17,5	8,5	2,5	0,0	1,0
Lecturers: Viktoria Mirsalova					
Last change: 20.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.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: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: I., II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
Learning outcomes: Learning the handwritten Russian (Russian Cursive Cyrillic), developing further language skills, gaining knowledge of Russian culture, history and way of life, pre-intermediate to intermediate grammar and vocabulary.					
Class syllabus: Learning the handwritten Russian (Russian Cursive Cyrillic), developing further language skills, gaining knowledge of Russian culture, history and way of life, pre-intermediate to intermediate grammar and vocabulary. 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: Точка Ру А2 (Ольга Долматова, Екатерина Новачац) а Short Stories in Russian (Olly Richards, Alex Rowlings)					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 144					
A	B	C	D	E	FX
75,69	13,19	6,94	2,78	0,69	0,69
Lecturers: Viktoria Mirsalova					
Last change: 20.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-154/15		Course title: Semester Project			
Educational activities: Type of activities: independent work Number of hours: per week: 6 per level/semester: 78 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements: Continuous assessment: homework Exam: presentation Scale of assessment (preliminary/final): 50/50					
Learning outcomes: The student will learn the basics of systematic work on one topic, which he / she will study from professional book and article literature and will create a scientific output based on scientific research activities under the guidance of a supervisor.					
Class syllabus: The projects will focus on laser physics, optics and optical spectroscopy. The student will develop an experimental or theoretical method related to laser physics, optics or optical spectroscopy. The obtained results will be processed in written form in the range of about 10-15 pages.					
Recommended literature: Selection of current articles from the area.					
Languages necessary to complete the course: English					
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: prof. RNDr. Pavel Veis, CSc.					
Last change: 18.02.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-171/20		Course title: Slovak Language for Foreign Students (1)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: I., II.					
Prerequisites:					
Course requirements: tests Course prerequisites: https://fmph.uniba.sk/microsites/kjp/katedra-jazykovej-pripravy/poziadavky-na-udelenie-priebežneho-hodnotenia-aj1aj2aj3-ostatne-kurzy/ Scale of assessment (preliminary/final): 100/0					
Learning outcomes: This course is aimed for foreign students to learn the fundamentals of the Slovak language with the focus on basic communication as well as all other language skills- listening comprehension,reading and writing.					
Class syllabus: The syllabus is targeted at the comprehension of the basics of the Slovak language for the absolute beginners (A1).					
Recommended literature: Križom- Krážom Slovenčina 1, additional material to further support the covered topics.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 23					
A	B	C	D	E	FX
47,83	0,0	0,0	0,0	0,0	52,17
Lecturers: Mgr. Aneta Barnes					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-172/20		Course title: Slovak Language for Foreign Students (2)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2.					
Educational level: I., II.					
Prerequisites:					
Course requirements: tests Course prerequisites: https://fmph.uniba.sk/microsites/kjp/katedra-jazykovej-pripravy/poziadavky-na-udelenie-priebežneho-hodnotenia-aj1aj2aj3-ostatne-kurzy/ Scale of assessment (preliminary/final): 100/0					
Learning outcomes: This course is aimed for foreign students to learn the fundamentals of the Slovak language with the focus on basic communication as well as all other language skills- listening comprehension,reading and writing.					
Class syllabus: The syllabus is targeted at the comprehension of the basics of the Slovak language for the absolute beginners (A1) and this course is a follow up course to the Slovak language course 1.					
Recommended literature: Križom- Krážom Slovenčina 1, additional material to further support the covered topics					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 22					
A	B	C	D	E	FX
81,82	0,0	4,55	0,0	0,0	13,64
Lecturers: Mgr. Aneta Barnes					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-271/20		Course title: Slovak Language for Foreign Students (3)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 3.					
Educational level: I., II.					
Prerequisites:					
Course requirements: tests Course prerequisites: https://fmph.uniba.sk/microsites/kjp/katedra-jazykovej-pripravy/poziadavky-na-udelenie-priebežneho-hodnotenia-aj1aj2aj3-ostatne-kurzy/ Scale of assessment (preliminary/final): 100/0					
Learning outcomes: This course is aimed for foreign students to better comprehend all the language skills important to enable correct usage of the Slovak language – listening comprehension, reading, writing and speaking.					
Class syllabus: The syllabus is targeted at the comprehension of all the language skills of the Slovak language , and it is a follow up course to the Slovak language course 2.					
Recommended literature: Križom-Krážom Slovenčina 2, additional material to further support the covered topics.					
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: Mgr. Aneta Barnes					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-272/20		Course title: Slovak Language for Foreign Students (4)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: I., II.					
Prerequisites:					
Course requirements: tests Course prerequisites: https://fmph.uniba.sk/microsites/kjp/katedra-jazykovej-pripravy/poziadavky-na-udelenie-priebežneho-hodnotenia-aj1aj2aj3-ostatne-kurzy/ Scale of assessment (preliminary/final): 100/0					
Learning outcomes: This course is aimed for foreign students to better comprehend all the language skills important to enable correct usage of the Slovak language – listening comprehension, reading, writing and speaking.					
Class syllabus: The syllabus is targeted at the comprehension of all the language skills of the Slovak language , and it is a follow up course to the Slovak language course 3.					
Recommended literature: Križom-Krážom Slovenčina 2, additional material to further support the covered topics.					
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: Mgr. Aneta Barnes					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-210/00		Course title: Special Practical in Optical Spectroscopy			
Educational activities: Type of activities: laboratory practicals Number of hours: per week: 6 per level/semester: 78 Form of the course: on-site learning					
Number of credits: 6					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements: Continuous assessment: control of preparation for the internship, papers from the tasks Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 100/0					
Learning outcomes: Mastering experimental methods of optical spectroscopy directly on devices where scientific projects are solved by research teams of the Department of Plasma Physics and the Department of Optics.					
Class syllabus: Visible and infrared spectroscopy – prism and grating spectrometers, photomultiplier, CCD detector, calibration of a spectrometer, time-resolved spectroscopy, actinometry, determination of rotational and vibrational temperatures of diatomic molecules. Spectroscopy in vacuum ultraviolet range. Cavity ring-down spectroscopy. Echelett spectrometer.					
Recommended literature: A. Beiser, Úvod do moderní fyziky, Academia, Praha 1978 G.V. Maar: Plasma Spectroscopy, Elsevier Amsterdam 1968 Scientific papers					
Languages necessary to complete the course: English					
Notes:					
Past grade distribution Total number of evaluated students: 21					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: Mgr. Michaela Horňáčková, PhD., doc. Dr. Alicia Marín Roldán, Vishal Dwivedi, Geovanna Elizabeth Vásquez Lara					

Last change: 18.02.2022
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KEF/2-FOL-211/15		Course title: Specialised Practical Classes in Laser Physics			
Educational activities: Type of activities: laboratory practicals Number of hours: per week: 6 per level/semester: 78 Form of the course: on-site learning					
Number of credits: 6					
Recommended semester: 3.					
Educational level: II.					
Prerequisites:					
Antirequisites: FMFI.KEF/2-FOL-211/00					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 15					
A	B	C	D	E	FX
66,67	13,33	20,0	0,0	0,0	0,0
Lecturers: prof. RNDr. Pavel Veis, CSc., doc. RNDr. Vladimír Mesároš, CSc., RNDr. Pavel Vojtek, CSc., RNDr. Zuzana Zábudlá, Mgr. Michaela Horňáčková, PhD., M.Sc. Sahithya Atikukke, doc. Dr. Alicia Marín Roldán					
Last change: 02.06.2015					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTV/2-MXX-115/17		Course title: Sports in Natur (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: II.					
Prerequisites:					
Course requirements: Grades: A 90%, B 80%, C 70%, D 60%, E 50% The condition for the award of 1 or 2 credits is the completion of a multi-day course in its full scope, or the completion of one-day courses in the scope of 4 days. Candidates can apply to the leaders of individual courses. From the presented offer of courses, you can choose the one that suits your interests, abilities and deadlines.					
Learning outcomes: Acquisition and development of basic motor skills and abilities in selected sports: skiing and snowboarding. Mastering the correct technique of performing individual movements, which are necessary for skiing and snowboarding.					
Class syllabus: The student can sign up for the outdoor sports courses offered by the department: skiing, snowboarding. The lessons in the courses are focused on the development of basic and special movement skills and mastering the techniques needed for the sports.					
Recommended literature:					
Languages necessary to complete the course: Slovak					
Notes: KTVŠ does not rent ski equipment.					
Past grade distribution Total number of evaluated students: 83					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: Mgr. Martin Dovičák, PhD., Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, PaedDr. Mikuláš Ortutay, Mgr. Júlia Raábová, PhD.					

Last change: 16.06.2022
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTV/2-MXX-116/18		Course title: Sports in Natur (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: 2.					
Educational level: II.					
Prerequisites:					
Course requirements: Grades: A 90%, B 80%, C 70%, D 60%, E 50%. The condition for the award of 1 or 2 credits is the completion of a multi-day course in its full scope, or the completion of one-day courses in the scope of 4 days. Candidates can apply to the leaders of individual courses. From the presented offer of courses, you can choose the one that suits your interests, abilities and deadlines.					
Learning outcomes: Creating a positive and lasting relationship with physical activity. Acquisition and mastery of basic motor skills and abilities in outdoor sports: windsurfing, beach volleyball, water tourism - river rafting, hiking and other sports according to interest. Training and improving the technique needed for the sports.					
Class syllabus: The student can sign up for the outdoor sports courses offered by the department: water tourism - river rafting, windsurfing, beach volleyball, hiking and other hobby sports. The lessons in the courses are focused on the development of basic and special movement skills and, mastering the techniques needed for the sports.					
Recommended literature:					
Languages necessary to complete the course: Slovak					
Notes: KTVŠ will provide sports equipment.					
Past grade distribution Total number of evaluated students: 50					
A	B	C	D	E	FX
94,0	0,0	0,0	0,0	0,0	6,0

Lecturers: Mgr. Martin Dovičák, PhD., Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, PaedDr. Mikuláš Ortutay, Mgr. Júlia Raábová, PhD., Mgr. Tomáš Lovecký
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Last change: 16.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTF/2-FOL-235/00		Course title: Theory of Radiation			
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 3					
Recommended semester: 3.					
Educational level: II.					
Prerequisites:					
Course requirements: Continuous assessment: problem solving Exam: written Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 100/0					
Learning outcomes: Ability to calculate the basic physical quantities characterizing the properties of the electromagnetic field in the near and far field of the charge system, radiating in the classical approximation					
Class syllabus: Retarded potentials, Lienard-Wiechert potentials, 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.					
Languages necessary to complete the course: Slovak or English					
Notes:					
Past grade distribution Total number of evaluated students: 3					
A	B	C	D	E	FX
0,0	33,33	0,0	33,33	0,0	33,33
Lecturers: RNDr. Eduard Masár, PhD.					
Last change: 23.02.2022					

Approved by: