

Course descriptions

TABLE OF CONTENTS

1. 3-FFP-005/00	Automatisation of Experiments.....	2
2. 3-FFP-803/10	BSc Thesis Supervision.....	3
3. 3-FFP-203/15	Bio-medical Applications of Plasmas and Radiation.....	4
4. 3-FFP-704/10	Citation Registered in Web of Science or SCOPUS.....	5
5. 3-FFP-706/15	Citation in Peer-Reviewed Scientific Journal or Proceedings.....	6
6. 3-FFP-501/15	Completion of PhD Research Project Stage (1).....	7
7. 3-FFP-502/15	Completion of PhD Research Project Stage (2).....	8
8. 3-MXX-101/15	Course of English for PhD Studies (1).....	9
9. 3-MXX-102/15	Course of English for PhD Studies (1).....	10
10. 3-FFP-012/15	Department Seminar (1).....	11
11. 3-FFP-013/15	Department Seminar (2).....	12
12. 3-FFP-014/15	Department Seminar (3).....	13
13. 3-FFP-015/15	Department Seminar (4).....	14
14. 3-FFP-016/15	Department Seminar (5).....	15
15. 3-FFP-017/15	Department Seminar (6).....	16
16. 3-FFP-018/15	Department Seminar (7).....	17
17. 3-FFP-019/15	Department Seminar (8).....	18
18. 3-FFP-801/10	Direct Pedagogical Activity (1).....	19
19. 3-FFP-802/10	Direct Pedagogical Activity (2).....	20
20. 3-FFP-950/15	Dissertation Examination (state exam).....	21
21. 3-FFP-990/15	Dissertation Thesis Defense (state exam).....	22
22. 3-FFP-703/10	Domestic Research Project Co-Investigator.....	23
23. 3-FFP-001/00	Experimental Vademecum.....	24
24. 3-FFP-002/15	High Temperature Plasma.....	26
25. 3-FFP-101/15	Individual Study of Science and Research Resources (1).....	28
26. 3-FFP-104/15	Individual Study of Science and Research Resources (2).....	29
27. 3-FFP-702/10	International Research Project Co-Investigator.....	30
28. 3-FFP-006/15	Mass and Ion Mobility Spectrometry.....	31
29. 3-FFP-011/15	Modern Plasma Technologies.....	32
30. 3-FFP-307/15	Non-reviewed Home or Foreign Papers Volume.....	33
31. 3-FFP-701/10	Obtaining a University Grant.....	34
32. 3-FFP-004/00	Optical Plasma Diagnostics.....	35
33. 3-FFP-403/10	Presentation at Domestic Conference.....	37
34. 3-FFP-401/10	Presentation at International Conference.....	38
35. 3-FFP-303/15	Publication in International Peer-Reviewed Journal or Peer-Reviewed Proceedings.....	39
36. 3-FFP-302/15	Publication in a Current Contents-registered Periodical.....	40
37. 3-FFP-304/15	Publication in a Reviewed Periodical or Reviewed Almanac.....	41
38. 3-FFP-301/15	Publication in an A-category Periodical.....	42
39. 3-FFP-804/15	Supervision of Student Scientific Conference Contribution.....	43
40. 3-FFP-009/15	Surface Treatment.....	44

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/3-FFP-005/00	Course title: Automatisation of Experiments
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: 5	
Recommended semester: 1.	
Educational level: III.	
Prerequisites:	
Course requirements:	
Learning outcomes:	
Class syllabus: Active and passive sensors, signal unification, basic of Boole algebra, logical circuits , sequential circuits, architecture of PC, software for data ecquisition and processcontroll, A/D inputs, outputs: Analog to Digital Conversion, Digital toanalog converison, serial and parallel transfer, USB, digital oscilloscopes, DSP – digital signalprocessing.	
Recommended literature: Limann O., Pelka H., Elektronika bez balastu, Bratislava Alfa, 1990 (in Slovak) Bernard J-M. & Hugon J.: Od logických obvodu k mikroprocesorum, SNTL, Praha, 1984 (in Slovak) Horowitz-P. – Hill W.: The Art of Electronics, Cambridge Univ.,Press, 2nd Ed. 1989 (available in Russian, too) The Scientist and Engineer's Guide to Digital Signal Processing by Steven W. Smith, California Technical Publishing ISBN 0-9660176-3-3 (1997) – je aj na internete	
Languages necessary to complete the course:	
Notes:	
Past grade distribution Total number of evaluated students: 5	
ABS	NEABS
100,0	0,0
Lecturers: RNDr. Imrich Morva, PhD., prof. Dr. Štefan Matejčík, 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.KEF/3-FFP-803/10	Course title: BSc Thesis Supervision
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 10	
Recommended semester: 3.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: The student will gain experience in supervising a bachelor's degree student during preparation of bachelor's thesis.	
Class syllabus: Listing the topic of the bachelor's thesis, work plan for the bachelor's student, guiding the student in scientific work of theoretical or experimental nature, consultations.	
Recommended literature: Current scientific literature and publications in the corresponding field.	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 0	
ABS	NEABS
0,0	0,0
Lecturers:	
Last change: 26.01.2022	
Approved by:	

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAFZM/3-FFP-203/15	Course title: Bio-medical Applications of Plasmas and Radiation
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning, distance learning	
Number of credits: 10	
Recommended semester: 2.	
Educational level: III.	
Prerequisites:	
Course requirements:	
Learning outcomes:	
Class syllabus:	
Recommended literature:	
Languages necessary to complete the course:	
Notes:	
Past grade distribution Total number of evaluated students: 10	
ABS	NEABS
100,0	0,0
Lecturers: prof. RNDr. Zdenko Machala, 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.KEF/3-FFP-704/10	Course title: Citation Registered in Web of Science or SCOPUS
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 6.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: The citing paper broadens the student's horizons in terms of the reach of his / her cited research and may inspire further research.	
Class syllabus: Research work on a topic related to the dissertation, processing results, publication of results, citation registered in Web of Science or SCOPUS.	
Recommended literature:	
Languages necessary to complete the course: Slovak, English	
Notes:	
Past grade distribution Total number of evaluated students: 1	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 09.03.2022	
Approved by:	

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/3-FFP-706/15	Course title: Citation in Peer-Reviewed Scientific Journal or Proceedings
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 4.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: The student gained experience with scientific work and publishing their results, which induced a response in the form of a citation in a peer-reviewed scientific journal or proceedings.	
Class syllabus: Research work on a topic related to the dissertation, processing of results, publication of results, citation registered in a peer-reviewed scientific journal or collection.	
Recommended literature:	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 0	
ABS	NEABS
0,0	0,0
Lecturers:	
Last change: 27.01.2022	
Approved by:	

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/3-FFP-501/15	Course title: Completion of PhD Research Project Stage (1)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 10	
Recommended semester: 4.	
Educational level: III.	
Prerequisites:	
Course requirements: Approximate grade scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 100/0	
Learning outcomes: The student proved by the continuous scientific work the completion of a significant stage of his scientific work on the topic of the dissertation thesis.	
Class syllabus: Completion of a new experimental device, introduction of a new measurement method, development of a new theoretical model, etc.	
Recommended literature:	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 3	
ABS	NEABS
100,0	0,0
Lecturers:	
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/3-FFP-502/15	Course title: Completion of PhD Research Project Stage (2)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 10	
Recommended semester: 6.	
Educational level: III.	
Prerequisites:	
Course requirements: Approximate grade scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 100/0	
Learning outcomes: The student proved by the continuous scientific work the completion of a significant stage of his scientific work on the topic of the dissertation thesis.	
Class syllabus: Completion of a new experimental device, introduction of a new measurement method, development of a new theoretical model, etc	
Recommended literature:	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 5	
ABS	NEABS
100,0	0,0
Lecturers:	
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.KJP/3-MXX-101/15			Course title: Course of English for PhD Studies (1)				
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning, distance learning							
Number of credits: 5							
Recommended semester: 1.							
Educational level: III.							
Prerequisites:							
Course requirements:							
Learning outcomes:							
Class syllabus:							
Recommended literature:							
Languages necessary to complete the course:							
Notes:							
Past grade distribution Total number of evaluated students: 166							
A	ABS	B	C	D	E	FX	NEABS
50,6	43,98	0,6	0,0	0,0	2,41	0,0	2,41
Lecturers: PhDr. Alena Zemanová							
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/3-MXX-102/15				Course title: Course of English for PhD Studies (1)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning, distance learning							
Number of credits: 5							
Recommended semester: 2.							
Educational level: III.							
Prerequisites: FMFI.KJP/3-MXX-101/15 - Course of English for PhD Studies (1)							
Course requirements:							
Learning outcomes:							
Class syllabus:							
Recommended literature:							
Languages necessary to complete the course:							
Notes:							
Past grade distribution Total number of evaluated students: 161							
A	ABS	B	C	D	E	FX	NEABS
54,66	38,51	0,0	0,0	0,0	0,0	0,0	6,83
Lecturers: PhDr. Alena Zemanová							
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/3-FFP-012/15	Course title: Department Seminar (1)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 5	
Recommended semester: 1.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: By actively participating in the scientific seminar of the workplace, the student will learn the form of presentation and discussion of scientific results. They will deepen their knowledge of scientific problems covered at the seminar.	
Class syllabus: Active participation in the workplace seminar. Preparation of materials for performance at the workplace seminar. Presentation at the workplace seminar.	
Recommended literature: Current scientific papers relevant to topic.	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 5	
ABS	NEABS
100,0	0,0
Lecturers: prof. Dr. Štefan Matejčík, DrSc., doc. RNDr. Anna Zahoranová, 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/3-FFP-013/15	Course title: Department Seminar (2)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 5	
Recommended semester: 2.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: By actively participating in the scientific seminar of the workplace, the student will learn the form of presentation and discussion of scientific results. They will deepen their knowledge of scientific problems covered at the seminar.	
Class syllabus: Active participation in the workplace seminar. Preparation of materials for performance at the workplace seminar. Presentation at the workplace seminar.	
Recommended literature: Current scientific papers relevant to topic.	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 5	
ABS	NEABS
100,0	0,0
Lecturers: prof. Dr. Štefan Matejčík, DrSc., doc. RNDr. Anna Zahoranová, 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/3-FFP-014/15	Course title: Department Seminar (3)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 5	
Recommended semester: 3.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: By actively participating in the scientific seminar of the workplace, the student will learn the form of presentation and discussion of scientific results. They will deepen their knowledge of scientific problems covered at the seminar.	
Class syllabus: Active participation in the workplace seminar. Preparation of materials for performance at the workplace seminar. Presentation at the workplace seminar.	
Recommended literature: Current scientific papers relevant to topic.	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 3	
ABS	NEABS
100,0	0,0
Lecturers: prof. Dr. Štefan Matejčík, DrSc., doc. RNDr. Anna Zahoranová, 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/3-FFP-015/15	Course title: Department Seminar (4)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 5	
Recommended semester: 4.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: By actively participating in the scientific seminar of the workplace, the student will learn the form of presentation and discussion of scientific results. They will deepen their knowledge of scientific problems covered at the seminar.	
Class syllabus: Active participation in the workplace seminar. Preparation of materials for performance at the workplace seminar. Presentation at the workplace seminar.	
Recommended literature: Current scientific papers relevant to topic.	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 4	
ABS	NEABS
100,0	0,0
Lecturers: prof. Dr. Štefan Matejčík, DrSc., doc. RNDr. Anna Zahoranová, 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/3-FFP-016/15	Course title: Department Seminar (5)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 5	
Recommended semester: 5.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: By actively participating in the scientific seminar of the workplace, the student will learn the form of presentation and discussion of scientific results. They will deepen their knowledge of scientific problems covered at the seminar.	
Class syllabus: Active participation in the workplace seminar. Preparation of materials for performance at the workplace seminar. Presentation at the workplace seminar.	
Recommended literature: Current scientific papers relevant to topic.	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 5	
ABS	NEABS
100,0	0,0
Lecturers: prof. Dr. Štefan Matejčík, DrSc., doc. RNDr. Anna Zahoranová, 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/3-FFP-017/15	Course title: Department Seminar (6)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 5	
Recommended semester: 6.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: By actively participating in the scientific seminar of the workplace, the student will learn the form of presentation and discussion of scientific results. They will deepen their knowledge of scientific problems covered at the seminar.	
Class syllabus: Active participation in the workplace seminar. Preparation of materials for performance at the workplace seminar. Presentation at the workplace seminar.	
Recommended literature: Current scientific papers relevant to topic.	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 5	
ABS	NEABS
100,0	0,0
Lecturers: prof. Dr. Štefan Matejčík, DrSc., doc. RNDr. Anna Zahoranová, 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/3-FFP-018/15	Course title: Department Seminar (7)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 5	
Recommended semester: 7.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: By actively participating in the scientific seminar of the workplace, the student will learn the form of presentation and discussion of scientific results. They will deepen their knowledge of scientific problems covered at the seminar.	
Class syllabus: Active participation in the workplace seminar. Preparation of materials for performance at the workplace seminar. Presentation at the workplace seminar.	
Recommended literature: Current scientific papers relevant to topic.	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 2	
ABS	NEABS
100,0	0,0
Lecturers: prof. Dr. Štefan Matejčík, DrSc., doc. RNDr. Anna Zahoranová, 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/3-FFP-019/15	Course title: Department Seminar (8)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 5	
Recommended semester: 8.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: By actively participating in the scientific seminar of the workplace, the student will learn the form of presentation and discussion of scientific results. They will deepen their knowledge of scientific problems covered at the seminar.	
Class syllabus: Active participation in the workplace seminar. Preparation of materials for performance at the workplace seminar. Presentation at the workplace seminar.	
Recommended literature: Current scientific papers relevant to topic.	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 2	
ABS	NEABS
100,0	0,0
Lecturers: prof. Dr. Štefan Matejčík, DrSc., doc. RNDr. Anna Zahoranová, 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/3-FFP-801/10	Course title: Direct Pedagogical Activity (1)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 5	
Recommended semester: 1.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: The student will gain experience with direct pedagogical activities in conducting computer exercises or laboratory practices.	
Class syllabus: Conducting computational exercises or laboratory practices.	
Recommended literature:	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 10	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 25.01.2022	
Approved by:	

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/3-FFP-802/10	Course title: Direct Pedagogical Activity (2)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 5	
Recommended semester: 4.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: The student will gain experience with direct pedagogical activities in conducting computer exercises or laboratory practices.	
Class syllabus: Conducting computer exercises or laboratory practices.	
Recommended literature:	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 8	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 25.01.2022	
Approved by:	

STATE EXAM DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFLKEF/3-FFP-950/15	Course title: Dissertation Examination
Number of credits: 20	
Recommended semester: 3., 4..	
Educational level: III.	
Learning outcomes: Passing the dissertation exam and defending the dissertation project.	
Class syllabus: Presentation of the dissertation project and the goals of the dissertation. In the second part, an oral exam in Plasma Physics and Electric Discharges and their applications.	
State exam syllabus:	
Languages necessary to complete the course: english	
Last change: 01.02.2022	
Approved by:	

STATE EXAM DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/3-FFP-990/15	Course title: Dissertation Thesis Defense
Number of credits: 30	
Recommended semester: 7., 8..	
Educational level: III.	
Learning outcomes: Defense of the dissertation thesis.	
Class syllabus: Defense of the dissertation before the commission appointed by the dean.	
State exam syllabus:	
Recommended literature: Current articles on the issue	
Languages necessary to complete the course: english	
Last change: 25.01.2022	
Approved by:	

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/3-FFP-703/10	Course title: Domestic Research Project Co-Investigator
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 10	
Recommended semester: 4.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: The student will gain experience in scientific work on homework projects.	
Class syllabus: Scientific work on tasks arising from the objectives of a domestic scientific project.	
Recommended literature:	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 4	
ABS	NEABS
100,0	0,0
Lecturers:	
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.KAFZM/3-FFP-001/00	Course title: Experimental Vademecum
Educational activities: Type of activities: lecture Number of hours: per week: 4 per level/semester: 52 Form of the course: on-site learning, distance learning	
Number of credits: 10	
Recommended semester: 1.	
Educational level: III.	
Prerequisites:	
Course requirements: Evaluation during semester: homeworks Exam: oral exam Approximate evaluation grade scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 30/70	
Learning outcomes: After completing the course, the student will have the basics of construction of experimental apparatus. They will be acquainted with the properties of commonly used materials and with the possibilities of their machining, they will expand their knowledge of vacuum technology, they will gain an overview of the practical use of optical and electronic components.	
Class syllabus: Design of experimental equipment - production processes, materials and their properties, joining materials, blueprints. Vacuum technology - materials, measurement of pressure and flow of gases, vacuum generation, valves, couplings, electricity and electronics in vacuum, differential pumping, construction of metal vacuum apparatus. Optical systems - optical components, materials, sources, lasers. Electronics - basic circuits, passive and active components, amplifiers, voltage and current sources, AD/DA converters, signal and noise, grounding. Temperature measurement and control.	
Recommended literature: J.H. Moore, C.C. Davis, M.A. Coplan, S.C. Greer: Building Scientific Apparatus: A#Practical Guide to Design and Construction, 4th ed., Cambridge University Press, Cambridge, 2009. P. Horowitz, W. Hill: The Art of Electronics, 3rd ed., Cambridge University Press, Cambridge, 2015.	
Languages necessary to complete the course: english	

Notes:	
Past grade distribution	
Total number of evaluated students: 3	
ABS	NEABS
100,0	0,0
Lecturers: doc. RNDr. Karol Hensel, PhD., doc. RNDr. Mário Janda, PhD., prof. RNDr. Zdenko Machala, DrSc., doc. Mgr. Peter Čermák, 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/3-FFP-002/15	Course title: High Temperature Plasma
Educational activities: Type of activities: lecture Number of hours: per week: 4 per level/semester: 52 Form of the course: on-site learning	
Number of credits: 10	
Recommended semester: 1.	
Educational level: III.	
Prerequisites:	
Course requirements: Exam: oral Approximate evaluation grade scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 0/100	
Learning outcomes: The student will learn about the physics of high-temperature plasma, based on these knowledges student will be able to understand physical principles of confinement of fully ionized, high temperature (> 100 MK) plasma for the realization of controlled thermonuclear fusion.	
Class syllabus: Thermonuclear fusion between heavy isotopes of Hydrogen and its economic importance. Physical conditions for the realization of nuclear fusion - Lawson's criterion. Motion of single, charged particle in the electric and magnetic fields. Magnetohydrodynamic equations for strongly ionized plasmas. Generalized Ohm's law, magnetic pressure and freezing of the magnetic field lines in the plasma. Diffusion of magnetic field lines into the plasma. Electrical conductivity of plasma in a magnetic field. Equilibrium and dynamic pinch effect and it's instabilities. Principles of high-temperature plasma's confinement in the magnetic field. Additional heating of high-temperature plasma and reactor operating regimes. Concepts of ITER and DEMO. Diagnostic methods of high-temperature plasma.	
Recommended literature: Fundamentals of plasma physics / J. A. Bittencourt. New York : Springer, 2004 Jeffrey Freidberg: Plasma physics and fusion energy, Cambridge University Press, 2007	
Languages necessary to complete the course: english	
Notes:	

Past grade distribution	
Total number of evaluated students: 6	
ABS	NEABS
100,0	0,0
Lecturers: doc. Dr. Miklós Berta, 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/3-FFP-101/15	Course title: Individual Study of Science and Research Resources (1)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 10	
Recommended semester: 1.	
Educational level: III.	
Prerequisites:	
Course requirements: Approximate grade scale A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 100/0	
Learning outcomes: The aim is to teach the doctoral student to study professional literature independently and to critically assess its content	
Class syllabus: The doctoral student will study the professional literature recommended by the supervisors related to the topic of the dissertation.	
Recommended literature: Current scientific papers related to studied topic.	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 6	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 27.01.2022	
Approved by:	

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/3-FFP-104/15	Course title: Individual Study of Science and Research Resources (2)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 10	
Recommended semester: 2.	
Educational level: III.	
Prerequisites:	
Course requirements: Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 100/0	
Learning outcomes: The aim is to teach the doctoral student to study scientific literature independently and to critically assess its content.	
Class syllabus: The doctoral student studies the scientific literature related to the topic of the dissertation.	
Recommended literature: Current papers related to dissertation topic.	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 6	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 27.01.2022	
Approved by:	

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/3-FFP-702/10	Course title: International Research Project Co-Investigator
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 15	
Recommended semester: 6.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: The student will gain experience in scientific work on the tasks of an international scientific project .	
Class syllabus: Scientific work on tasks arising from the goals of an international scientific project.	
Recommended literature:	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 0	
ABS	NEABS
0,0	0,0
Lecturers:	
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/3-FFP-006/15	Course title: Mass and Ion Mobility Spectrometry
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: 5	
Recommended semester: 2.	
Educational level: III.	
Prerequisites:	
Course requirements:	
Learning outcomes:	
Class syllabus:	
Recommended literature:	
Languages necessary to complete the course:	
Notes:	
Past grade distribution Total number of evaluated students: 6	
ABS	NEABS
100,0	0,0
Lecturers: prof. Dr. Štefan Matejčík, DrSc., RNDr. Ladislav Moravský, 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/3-FFP-011/15	Course title: Modern Plasma Technologies
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: 5	
Recommended semester: 3.	
Educational level: III.	
Prerequisites:	
Course requirements:	
Learning outcomes:	
Class syllabus:	
Recommended literature:	
Languages necessary to complete the course:	
Notes:	
Past grade distribution Total number of evaluated students: 3	
ABS	NEABS
100,0	0,0
Lecturers: doc. RNDr. Anna Zahoranová, PhD., doc. RNDr. Miroslav Zahoran, 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: FMFLKEF/3-FFP-307/15	Course title: Non-reviewed Home or Foreign Papers Volume
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 5	
Recommended semester: 8.	
Educational level: III.	
Prerequisites:	
Course requirements:	
Learning outcomes:	
Class syllabus:	
Recommended literature:	
Languages necessary to complete the course:	
Notes:	
Past grade distribution Total number of evaluated students: 3	
ABS	NEABS
100,0	0,0
Lecturers:	
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/3-FFP-701/10	Course title: Obtaining a University Grant
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 20	
Recommended semester: 8.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: The student gains experience in preparing a scientific project.	
Class syllabus: Scientific proproject proposal, determination of the project objectives, work progress and budget planning of the scientific project.	
Recommended literature:	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 5	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 26.01.2022	
Approved by:	

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/3-FFP-004/00	Course title: Optical Plasma Diagnostics
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: 5	
Recommended semester: 4.	
Educational level: III.	
Prerequisites:	
Course requirements: Examination: oral and written test Indicative rating scale: passed > 50%, failed < 50% Scale of assessment (preliminary/final): 0/100	
Learning outcomes: Upon completion, the student will master the methods of optical diagnostics of plasma, will be able to determine the characteristic plasma temperatures and concentrations of particles and radicals on the basis of experimental measurements.	
Class syllabus: Absolute and relative methods for determining the concentration of particles in the plasma, the characteristic temperatures of the population of states, determining the reaction constants of the formation and extinction of radicals and excited particles. Classical optical emission and ascending spectroscopy in the near IR, visible, UV and vacuum UV range. Time-resolved spectroscopy in a wide range of spectra, laser methods of plasma diagnostics.	
Recommended literature: Laser spectroscopy : Basic concepts and instrumentation / Wolfgang Demtröder. Berlin : Springer, 1981 Molekulová spektroskopie / Zuzana Chorvátová. Bratislava : Univerzita Komenského, 1987 Laserová spektroskopie / Zuzana Chorvátová. Bratislava : Univerzita Komenského, 1992 G.V. Maar: Plasma Spectroscopy, Elsevier Amsterdam 1968 H. R. Griem: Principles of plasma spectroscopy, Cambridge University Press 1997	
Languages necessary to complete the course: English	
Notes:	

Past grade distribution	
Total number of evaluated students: 0	
ABS	NEABS
0,0	0,0
Lecturers: prof. RNDr. Pavel Veis, CSc.	
Last change: 19.02.2022	
Approved by:	

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/3-FFP-403/10	Course title: Presentation at Domestic Conference
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 10	
Recommended semester: 8.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: The student will gain experience in presenting the results of scientific work to domestic and foreign scientific audiences.	
Class syllabus: Acquisition and processing of results, preparation of presentation, presentation at domestic conference.	
Recommended literature:	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 6	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 26.01.2022	
Approved by:	

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/3-FFP-401/10	Course title: Presentation at International Conference
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 20	
Recommended semester: 8.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: The student will gain experience in presenting the results of scientific work to a foreign scientific audience.	
Class syllabus: Obtaining and processing the results, preparation of the presentation, presentation at a foreign conference.	
Recommended literature:	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 17	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 26.01.2022	
Approved by:	

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/3-FFP-303/15	Course title: Publication in International Peer-Reviewed Journal or Peer-Reviewed Proceedings
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 20	
Recommended semester: 8.	
Educational level: III.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: By publishing the work in a international peer-reviewed journal or peer-reviewed proceedings, the student will gain practical experience in preparing the achieved scientific results for publication.	
Class syllabus: Preparation of results for publication, preparation of the manuscript, submitting the manuscript to the editorial office, incorporation of comments from the reviewers, proofs and communication with the editor of the journal.	
Recommended literature:	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 0	
ABS	NEABS
0,0	0,0
Lecturers:	
Last change: 26.01.2022	
Approved by:	

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/3-FFP-302/15	Course title: Publication in a Current Contents-registered Periodical
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 30	
Recommended semester: 8.	
Educational level: III.	
Prerequisites:	
Course requirements:	
Learning outcomes:	
Class syllabus:	
Recommended literature:	
Languages necessary to complete the course:	
Notes:	
Past grade distribution Total number of evaluated students: 0	
ABS	NEABS
0,0	0,0
Lecturers:	
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/3-FFP-304/15	Course title: Publication in a Reviewed Periodical or Reviewed Almanac
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 15	
Recommended semester: 8.	
Educational level: III.	
Prerequisites:	
Course requirements:	
Learning outcomes:	
Class syllabus:	
Recommended literature:	
Languages necessary to complete the course:	
Notes:	
Past grade distribution Total number of evaluated students: 0	
ABS	NEABS
0,0	0,0
Lecturers:	
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/3-FFP-301/15	Course title: Publication in an A-category Periodical
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 35	
Recommended semester: 8.	
Educational level: III.	
Prerequisites:	
Course requirements:	
Learning outcomes:	
Class syllabus:	
Recommended literature:	
Languages necessary to complete the course:	
Notes:	
Past grade distribution Total number of evaluated students: 6	
ABS	NEABS
100,0	0,0
Lecturers:	
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/3-FFP-804/15	Course title: Supervision of Student Scientific Conference Contribution
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning	
Number of credits: 10	
Recommended semester: 4.	
Educational level: III.	
Prerequisites:	
Course requirements:	
Learning outcomes: The doctoral student will gain experience in leading a student of a lower level of study in the creation of the work of the Students Scientific Conference.	
Class syllabus: Listing the topic of the work of SSC, work plan for the student, guiding the student in scientific work of theoretical or experimental nature, consultations.	
Recommended literature: Current journal literature in the field of issues.	
Languages necessary to complete the course: english	
Notes:	
Past grade distribution Total number of evaluated students: 0	
ABS	NEABS
0,0	0,0
Lecturers:	
Last change: 26.01.2022	
Approved by:	

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KEF/3-FFP-009/15	Course title: Surface Treatment
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 2 / 2 per level/semester: 26 / 26 Form of the course: on-site learning	
Number of credits: 10	
Recommended semester: 3.	
Educational level: III.	
Prerequisites:	
Course requirements:	
Learning outcomes:	
Class syllabus:	
Recommended literature:	
Languages necessary to complete the course:	
Notes:	
Past grade distribution Total number of evaluated students: 3	
ABS	NEABS
100,0	0,0
Lecturers: doc. RNDr. Miroslav Zahoran, CSc.	
Last change: 02.06.2015	
Approved by:	