CONTENT

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DCCD/11	**Course name:** Citation Registered in Citation Databases
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 20	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 4

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.
Date of last modification:
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DCZC/11	**Course name:** Citation in International Journal, Reviewed Proceeding
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 10	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 0	
abs	n
0.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.	
Date of last modification:	
Approved: prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DCMO/11	**Course name:** Citation in Monograph
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 20	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 0	
abs	n
0.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.	
Date of last modification:	
Approved: prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DCDC/11	**Course name:** Citation in National Journal, Reviewed Proceeding
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 1

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.
Date of last modification:
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DSDP/11	**Course name:** Co-partner of a National Project
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 44	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.	
Date of last modification:	
Approved: prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DSMP/11	**Course name:** Co-partner of an International Project
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 15	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 5	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.	
Date of last modification:	
Approved: prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DPPL/11	**Course name:** Computer-Based Physical Laboratory

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 1 / 2 **Per study period:** 14 / 28
Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course: 1., 3.

Course level: III.

Prerequisities:

Conditions for course completion:
Terms and conditions of assessment during the semester
-participation in classes in accordance with study regulations and teacher´s instructions
-active participation at exercises
-submitting all the partial assignments in accordance with teacher´s instruction
Final assessment:
-final oral examination (aimed at presentation of the final assignment)
Conditions for successful completion of the course:
-participation in lessons in accordance with the study regulations and teacher's instructions
-achieving the level higher than 50 % in assessment during the semester (30points) and in final assessment (70points)

Learning outcomes:
By the end of the course students get an overview of the inquiry-based education methods enhanced by digital technologies used in experimentation supported by datalogging in particular (computer-aided experiment, videomeasurements of physical phenomena) and mathematical modelling of physical phenomena). Students gain skills and competencies to the effective use of these technologies with understanding of the appropriate methods aimed at scientific inquiry with active students´ participation. Students demonstrate the gained skills by designing their own activities enhanced by digital technologies for physics teaching at lower and upper secondary level.

Brief outline of the course:
1. Scientific inquiry in education in physics, activities aimed at inquiry
2. Computer modelling of physical phenomena (dynamic, static, different schools systems available for this purpose)
3. Simulations in teaching and learning.
4. Computer-aided experiment and its effective use in the class (methods, demonstrations, in groups, labworks, school systems available for this purpose)
5. Mobile technologies for data collection.
6. Videomeasurments of physical phenomena on the computer and its implementation into the teaching (how to prepare a videoclip, standard and high speed videoclip, school systems available for this purpose)

7.Comparing theory and experiment (model and data from experiment or videomeasurement), model simulated for different parameters in order to get good correspondence theory vs. experiment
8.Effective implementation of inquiry activities enhanced by digital technologies into education.
9.Assessment methods in inquiry-based education enhanced by digital technologies.
10.Students independent work on the activities aimed at different levels of inquiry enhanced by digital technologies and assessment tools.

Recommended literature:

Learning by doing the CMA way, dostupné na https://cma-science.nl/
THORNTON, David, Ronald, SOKOLOFF, David: Interactive lecture demonstrations, John Wiley and Sons, 2004

Course language:

English

Notes:

Course assessment

Total number of assessed students: 7

N	P
0.0	100.0

Provides: doc. RNDr. Zuzana Ješková, PhD.

Date of last modification: 17.09.2021

Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ODZP/14	**Course name:** Defence of Doctoral Thesis

Course type, scope and the method:
Course type:
Recommended course-load (hours):
Per week: Per study period:
Course method: present

Number of ECTS credits: 30

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:
The Dissertation thesis is the result of the student's own scientific research. It must not show elements of academic fraud and must meet the criteria of correct research practice defined in the Rector's Decision no. 21/2021, which lays down the rules for assessing plagiarism at Pavel Jozef Šafárik University in Košice and its constituents. Fulfillment of the criteria is verified mainly in the process of supervising and in the process of the thesis defense. Failure to do so is grounds for disciplinary action.

Learning outcomes:
The Dissertation thesis has elements of a scientific work and the student demonstrates extensive mastery of the theory and professional terminology of the field of study, acquisition of knowledge, skills and competences in accordance with the declared profile of the graduate of the field of study, as well as the ability to apply them in an original way in solving selected problems of the field of study. The student demonstrates the ability of independent scientific work in terms of content, formal and ethical aspects. Further details of the Dissertation thesis are determined by Directive no. 1/2011 on the essential prerequisites of final theses and by the Study Rules of Procedure at UPJŠ in Košice for doctoral studies.
The doctoral student demonstrated the ability and readiness for independent scientific and creative activity in the field of study of philology in accordance with the expectations of the relevant qualification framework and the profile of the graduate.

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 104

N	P
0.96	99.04

Provides:
Date of last modification: 08.11.2022
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ DPEM/11	**Course name:** Development of Pedagogical Materials

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 1 / 2 **Per study period:** 14 / 28
Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course: 3.

Course level: III.

Prerequisities:

Conditions for course completion:
student prepares five proposals of basic types of pedagogical materials
oral examination

Learning outcomes:
The main objective is to prepare students to gain skills and competencies in order to be able to create basic types of pedagogical materials, scientific publication and conference contribution.

Brief outline of the course:
Journals aimed at education, types of publications, different journal columns, guidelines for authors, paper review
Searching references, citations, electronic databases
Conferences aimed at education, conference goals, thematic areas, forms of papers, proceedings, electronic/ printed proceedings. Presentation at the conference, oral presentation. Paper abstract, key words, oral presentation and poster, contribution to the proceedings, reviewed journal paper (Slovak or international journal), case study.
The main idea of the paper, different approaches, design of the paper structure, further editing, references, stylistics, content, editing of graphs, pictures, tables, electronical documents.
Design and principles of the teacher´s materials, worksheets and educational texts.

Recommended literature:
KATUŠČÁK, Dušan: Ako písať záverečné a kvalifikačné práce. Nitra: Enigma, 2004. 162 s. il. ISBN 80-89132-10-3

Course language:
Slovak,, English

Notes:

Course assessment
Total number of assessed students: 9

N	P
0.0	100.0

Provides: doc. RNDr. Marián Kireš, PhD., doc. PaedDr. Renáta Orosová, PhD.
Date of last modification: 03.05.2015
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DVUP/11	**Course name:** Development of a Teaching Tool
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 10	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 8	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.	
Date of last modification:	
Approved: prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DPPC/11	**Course name:** Direct Pedagogical Activities
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 30	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc.	
Date of last modification:	
Approved: prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ DZS/14	**Course name:** Dissertation examination

Course type, scope and the method:
Course type:
Recommended course-load (hours):
Per week: Per study period:
Course method: present

Number of ECTS credits: 20

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:
Obtaining required number of credits as given by the study plan.

Learning outcomes:
Evaluation of competences of the student according to his/her scientific profile.

Brief outline of the course:
Presentation of the results in the thesis for disertation exam, responding to referee´s comments, answering questions of exam committee. Two questions are selected subsequently from one compulsory and one optional subject, respectively. The subjects are selected by guarantee of the program according to the study plan and scientific profile of the student. The third question addresses the current state of work on dissertation thesis.

Recommended literature:

Course language:
english

Notes:

Course assessment
Total number of assessed students: 133

N	P
0.0	100.0

Provides:

Date of last modification: 03.05.2015

Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: CJP/ AJD1/07	**Course name:** English Language for PhD Students 1

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 2 **Per study period:** 28
Course method: present

Number of ECTS credits: 2

Recommended semester/trimester of the course: 1.

Course level: III.

Prerequisities:

Conditions for course completion:
Completion of e-course English for PhD Students (lms.upjs.sk), consultations (1-3).
Written assignments - Professional/Academic CV, Short Academic Biography.

Learning outcomes:
The development of students´ language skills - reading, writing, listening, speaking, improvement of their linguistic competence - students acquire knowledge of selected phonological, lexical and syntactic aspects, development of pragmatic competence - students can efectively use the language for a given purpose, with focus on Academic English and English for specific/professional purposes, level B2.

Brief outline of the course:
Specific aspects of academic and professional English with focus on correct pronunciation, vocabulary development (noun and verb collocations, phrasal verbs, prepositional phrases, word-formation, formal/informal language, etc.), selected aspects of English grammar (prepositions, grammar tenses, passive voice, etc.), academic writing (professional/academic CV, Short Academic Biography).

Recommended literature:
Moore, J.: Oxford Academic Vocabulary Practice. OUP, 2017.
Kolaříková, Z., Petruňová, H., Timková, R.: Angličtina v akademickom prostredí – cvičebnica. Košice, Vydavateľstvo ŠafárikPress, 2021.
Tomaščíková, S., Rozenfeld, J. Developing Academic English in Speaking and Writing. Vydavateľstvo ŠafárikPress, 2021.
McCarthy, M., O´Dell, F.: Academic Vocabulary in Use. CUP, 2008.
Štepánek, L., J. De Haff a kol.: Academic English-Akademická angličtina. Grada Publishing, a.s., 2011.
Armer, T.: Cambridge English for Scientists. CUP, 2011.
lms.upjs.sk

Course language:
English, level B2 according to CEFR

Notes:

Course assessment
Total number of assessed students: 738

N	Ne	P	Pr	abs	neabs
0.0	0.0	48.1	0.0	51.9	0.0

Provides: PhDr. Helena Petruňová, CSc., Mgr. Zuzana Kolaříková, PhD.

Date of last modification: 16.09.2022

Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: CJP/ AJD2/07	**Course name:** English Language for PhD Students 2
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week:** 2 **Per study period:** 28 **Course method:** present	
Number of ECTS credits: 3	
Recommended semester/trimester of the course: 2.	
Course level: III.	
Prerequisities:	
Conditions for course completion: Test, oral exam in accordance with the exam requirements (https://www.upjs.sk/filozoficka-fakulta/cjp/doktorandi-upjs/)	
Learning outcomes: The development of students´ language skills - reading, writing, listening, speaking, improvement of their linguistic competence - students acquire knowledge of selected phonological, lexical and syntactic aspects, development of pragmatic competence - students can efectively use the language for a given purpose, with focus on Academic English and English for specific/professional purposes, level B2.	
Brief outline of the course: Academic communication (self-presentation, presenting at scientific meetings and conferences). Specific aspects of academic and professional English with focus on vocabulary development (formality, academic word-list), English grammar (passive voice, nominalisatio), language functions (expressing opinion, cause/effect, presenting arguments, giving examples, describing graphs/charts/schemes, etc.). Cross-language interference.	
Recommended literature: Moore, J.: Oxford Academic Vocabulary Practice. OUP, 2017. Kolaříková, Z., Petruňová, H., Timková, R.: Angličtina v akademickom prostredí (cvičebnica). UPJŠ Košice, 2021. Tomaščíková, S., Rozenfeld, J. Developing Academic English in Speaking and Writing. Vydavateľstvo ŠafárikPress, 2021. McCarthy, M., O´Dell, F.: Academic Vocabulary in Use. CUP, 2008. Štepánek, L., J. De Haff a kol.: Academic English-Akademická angličtina. Grada Publishing, a.s., 2011. Armer, T.: Cambridge English for Scientists. CUP, 2011.	
Course language: B2 level according to CEFR	
Notes:	

Course assessment
Total number of assessed students: 729

N	Ne	P	Pr	abs	neabs
0.27	0.0	93.83	1.1	4.8	0.0

Provides: PhDr. Helena Petruňová, CSc., Mgr. Zuzana Kolaříková, PhD.

Date of last modification: 10.03.2022

Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DZGP/11	**Course name:** Gained Grant Support
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 10	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 10

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.
Date of last modification:
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DMKV/11	**Course name:** International Conference, Oral
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 8	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 13

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.
Date of last modification:
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DMKP/11	**Course name:** International Conference, Poster
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 6	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 25

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.
Date of last modification:
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DZRC/11	**Course name:** International Reputable Journal
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 20	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 9

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.
Date of last modification:
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DZRZ/11	**Course name:** International Reviewed Journal
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 10	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 4

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.
Date of last modification:
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DZSP/11	**Course name:** International Study Stay
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 6	
Recommended semester/trimester of the course: 5., 6.., 7., 8..	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 21	

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc.
Date of last modification:
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DVOK/11	**Course name:** Member of Organizing Committee of a Conference, Event
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 12	

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc.
Date of last modification:
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DMPC/11	**Course name:** Methodical and Popularization Activities
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 30	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.	
Date of last modification:	
Approved: prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DMPV/11	**Course name:** Methodology of Educational Research

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: 3 **Per study period:** 42
Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course: 4.

Course level: III.

Prerequisities:

Conditions for course completion:
Students prepare a detailed description of the theory application on the subject of their research in the form of presentation. Students can receive maximum of 50 points, the needed minimum is 26 points.
oral exam 0 to 50 points; summative assessment is the result of continuous assessment and oral exam.

Learning outcomes:
Getting the requested overview of the scientific methods for own successful educational research. Specifying and understanding the terms of use, advantages and disadvantages of the basic research forms (observation, pre-research, experimental, quasi-experimental, case study, qualitative, quantitative, historical, mixed research), principles of open science. Identifying and analyzing the methods and forms of research studied in a specific monograph or journal literature. Getting skills to apply gained knowledge to own scientific research in didactics. Getting key skills how to plan, implement, conduct, continuously and critically review and evaluate own research as it progresses.

Brief outline of the course:
The scientific method and its use in didactics. Stages of research, its preparation and organization. Research problem and the creation of a scientific hypothesis. Basic overview of current approaches to educational research. Pedagogical experiment. Quasi-experiment and case study. Methods for qualitative and quantitative research. Mixed method research. Analysis and application of theory in the study of scientific publications dealing with educational research. Planning, evaluation and control (management) own research as a scientific research project. The method of critical chain and critical path. Collecting data and conducting research work in the field. Open science.

Recommended literature:
1. Creswell, J. W., & Clark, V. L. P. (2017). Designing and Conducting Mixed Methods Research (3rd ed.). SAGE Publications, Inc.
2. Gavora, P., & kolektív autorov. (2010). Elektronická učebnica pedagogického výskumu. Univerzita Komenského. http://www.e-metodologia.fedu.uniba.sk/
3. Johnson, R. B., & Christensen, L. (2016). Educational Research: Quantitative, Qualitative, and Mixed Approaches (6th vyd.). SAGE Publications.

4. Pelikán, J. (2011). Základy empirického výzkumu jevů pedagogických. Karolinum, Univerzita Karlova.
5. Prokša, M., Held, Ľ., & kol. (2008). Metodológia pedagogického výskumu a jeho aplikácia v didaktikách prírodných vied. Univerzita Komenského.

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 9

N	P
0.0	100.0

Provides: doc. RNDr. Jozef Hanč, PhD., Mgr. Nataša Čopíková, PhD.

Date of last modification: 30.01.2022

Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DMTV/11	**Course name:** Modern Technologies in Education
Course type, scope and the method: **Course type:** Lecture / Practice **Recommended course-load (hours):** **Per week:** 1 / 2 **Per study period:** 14 / 28 **Course method:** present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course: 1.	
Course level: III.	
Prerequisities:	
Conditions for course completion: assessment of partial assignments 20 points presentation and defence of the project 20 points, oral examination 60 points A 100-90 B 89-80 C 79-70 D 69-60 E 59-50 F 49-0	
Learning outcomes: The student should obtain and be able to apply knowledge and skills in 1. today's digital technologies, their possibilities and functionalities for education according to the current European framework DigCompEdu 2. designing and realizing educational activities using chosen digital technologies in hybrid educational space, in selected content and teaching methods in the frame of physical education, in order to develop students' scientific and digital literacy	
Brief outline of the course: 1. Modern hybrid classroom and digital space in 21st century - technological progress and the profile of the graduate, modern digital tools to schools, didactical principles 2. School documentation on-line, cloud repositories and services - documents, gallery of the objects, working calendars 3. Digital hybrid workspace of the modern teacher - cooperation and the use of digital technologies 4. The science classroom for inquiry based hybrid education - basic principles of the classroom design and equipment and teaching in such a classroom 5. Digital information presentation - interactive beamer, visualiser, digital microscope, DVBT, full HD imaging 6. Digital picture processing - vector graphics, design of computer animation 7. Sound and video processing interactive multimedia objects 8. Digital collaborative technologies - interactive collaborative whiteboard, social ereader, evoting 9. Learning by inquiry in computer-based laboratory I.	

- measurement with the use of datalogging
10. Learning by inquiry in computer-based laboratory II.
- measurement on videoclips
11. Learning by inquiry in computer-based laboratory III.
- modelling and computer simulations
12. Educational project
interactive multimedia tools for learning by inquiry with the use of digital technologies

Recommended literature:

1. Redecker, C., Punie, Y. (2017). European Framework for the Digital Competence of Educators: DigCompEdu. Luxembourg: Publications Office of the European Union, 2017
2. C. R. Tucker, T. Wycoff, a J. T. Green, Blended Learning in Action: A Practical Guide Toward Sustainable Change. Thousand Oaks: Corwin Press, 2016.
3. D. Bannister, Guidelines on Exploring and Adapting: LEARNING SPACES IN SCHOOLS. Brussels: European Schoolnet, 2017.
4. Didactical Outputs of national project IT Academy

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 11

N	P
0.0	100.0

Provides: doc. RNDr. Marián Kireš, PhD., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Jozef Hanč, PhD.

Date of last modification: 27.01.2022

Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ DMTF/11	**Course name:** Modern Trends in Physics Education

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 2 / 1 **Per study period:** 28 / 14
Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course: 1., 3.

Course level: III.

Prerequisities:

Conditions for course completion:
two semestral projects,
oral exam

Learning outcomes:
To present results of research in the field of education and learning theory, in the field of science education and their influence to changes in the contents and methods of science education. To make students familiar with modern trends in science education those are applied worldwide. To point out at the conception of modern educational methods and hybrid forms, and their benefits for science education and STEM education.

Brief outline of the course:
Research results in the field of education and learning theory and in the field of science education. Reforms in science education. Importance of active approach in education. Role of digital technologies in building of scientific literacy. International projects dedicated to application of methods of active exploration by pupils. Results of research activities in science education. Analysis of case studies of pedagogical experiments and educational procedures. Informal education – its importance and trends. Concept maps.

Recommended literature:
1. Kireš, M., Ješková, Z., Ganajová, M., & Kimáková, K. Inquiry based activities in science education , part A, part B-Physics [in Slovak]. Bratislava: Štátny pedagogický ústav, 2016
2. Ambrose, S. A. et al. How Learning Works: Seven Research-Based Principles for Smart Teaching. San: Francisco: John Wiley & Sons. 2010
3. Fadel, C., Trilling, B., & Bialik, M. Four-dimensional Education. Boston: Center for Curriculum Redesign, 2015
4. Fraser, J. M., Timan, A. L., Miller, K., Dowd, J. E., Tucker, L., & Mazur, E. Teaching and physics education research: Bridging the gap. Reports on Progress in Physics, 77(3), 032401–032417, 2014
5. Khosrow-Pour (ed.) K-12 STEM Education: Breakthroughs in Research and Practice: Breakthroughs in Research and Practice. Hershey, IGI Global, 2017
6. D. Bannister, Guidelines on Exploring and Adapting: Learning spaces in schools. Brussels: European Schoolnet, 2017.

7. C. R. Tucker, T. Wycoff, a J. T. Green, Blended Learning in Action: A Practical Guide Toward Sustainable Change. Thousand Oaks: Corwin Press, 2016.

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 11

N	P
0.0	100.0

Provides: doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD., RNDr. Ľudmila Onderová, PhD.

Date of last modification: 27.01.2022

Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DDKV/11	**Course name:** National Conference, Oral
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 4	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 32

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.
Date of last modification:
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DDKP/11	**Course name:** National Conference, Poster
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 11

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.
Date of last modification:
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DDNC/11	**Course name:** National Non-Reviewed Journal
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 1

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.
Date of last modification:
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DDRC/11	**Course name:** National Reviewed Journal
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 8

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.
Date of last modification:
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DNZZ/11	**Course name:** Non-Reviewed International or National Proceedings
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 3

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.
Date of last modification:
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ PgVU/17	**Course name:** Pedagogy for University Teachers

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 28s
Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:
1. Development of a teaching diary—100%
2. Compulsory active participation and attendance in accordance with the Study Regulations.

Learning outcomes:
Students will be able to:
Apply didactic principles, methods, forms, and tools in the teaching of a specialised subject. Specify the educational procedures of a university teacher in subject teaching, pedagogical diagnostics, evaluation of learning outcomes, and self-reflection. Present rationalisation and streamlining possibilities in the teaching of specialised subjects. Apply educational competencies of university teachers taking into account the peculiarities of educating university students.

Brief outline of the course:
The personality of a university teacher. Teaching styles. Student in university education. Student learning styles. Possibilities of adapting teaching styles and student learning styles. University teacher–student interaction and communication in the teaching process. Pedagogical competencies of a university teacher. Didactic analysis of the curriculum; teaching materials and textbooks. Forms of university teaching. Methods of university teaching. Verification methods and student assessment. Creation of a didactic test. Designing university teaching process. University teacher self-reflection.

Recommended literature:
Čapek, R. (2015). Moderní didaktika. Lexikon výukových a hodnoticích metod. Praha, Grada Publishing, a.s.
Danek, J. (2014). Pedagogická komunikácia na vysokej škole. Trnava, Univerzita sv.Cyrila a Metoda v Trnave.
Dargová, J. (2001). Tvorivé kompetencie učiteľa. Prešov, Privat Press.
Dvořáček, J. (2014). Základy pedagogiky. Praha, Oeconomica.
Hupková, M., Petlák, E. (2004). Sebareflexia a kompetencie v práci učiteľa. Bratislava, IRIS.
Kyriacou, CH. (1996). Klíčové dovednosti učitele. Praha, Portál.
Mertin, V. a kol. (2012). Metody a postupy poznávaní žáka: pedagogická diagnostika. Praha, Wolters Kluwer.
Petty,G. (2013). Moderní vyučování. Praha, Portál.

Prucha, J. (2013). Moderní pedagogika. Praha, Portál.
Sirotová, M. (2014). Vysokoškolský učiteľ v edukačnom procese. Trnava, Univerzita sv.Cyrila a Metoda v Trnave.
Slávik, M. a kol. (2012). Vysokoškolská pedagogika. Praha, Grada.
Šebeň Zaťková, T. (2014). Úvod do vysokoškolskej pedagogiky. Trnava, Univerzita sv.Cyrila a Metoda v Trnave.
Turek, I. (2014). Didaktika. Bratislava, Wolters Kluwer, s.r.o.
Zormanová, L. (2014). Obecná didaktika. Praha, Grada.

Course language:
slovak

Notes:

Course assessment
Total number of assessed students: 78

abs	n	neabs
98.72	0.0	1.28

Provides: doc. PaedDr. Renáta Orosová, PhD.

Date of last modification: 07.09.2022

Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ DPOM/11	**Course name:** Physics Observation, Exploring and Measurements

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 1 / 2 **Per study period:** 14 / 28
Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course: 2., 4.

Course level: III.

Prerequisities:

Conditions for course completion:
Student prepares and carries out two experimentally solved problems in the form of school observation and measurement.
oral exam connected with realization and explanation of experimental problems.

Learning outcomes:
To develop experimental skills to propose, make and evaluate a school physics experiment. To link physics interpretation of phenomenon with its observation, demonstration and measurements in a school physics laboratory. Student obtains an insight into different approaches to experimental solution of more difficult physics problems and to complex exploration of selected phenomena.

Brief outline of the course:
Observation and demonstrations of phenomena: Inelastic collision; Multiple-ball collision; Ice bulge; Coanda effect; Magnetohydrodynamics; Steam boat; Siphon; Spreading of electromagnetic waves.
Exploration of physics phenomena: Electrochemical cell; Peltier effect; Efficiency of hydrogen fuel cell; Dynamics of movement of a model car powered by an engine using an elastic air-filled toy-balloon as the energy source; Total internal reflection; Magnetic levitation; Non-stationary state of tungsten filament of bulb when switch on; Geyser.
Measurement of physical quantities: Electric conductivity of gelatine solution as a function of temperature upon cooling; Determination efficiency of heat engine; Coefficient of restitution.
A ratio between the thermal energy and light energy emitted from an electric bulb.

Recommended literature:
Kluiber, Z.: Tvůrčí náboj úloh Turnaje mladých fyziků. MAFY, Hradec Králové, (2005)
J. Walker, “The Flying Circus of Physics with Answers,” New York: John Wiley &Sons,(1977)
J. Walker, “The Flying Circus of Physics with Answers,” 2ns edition, New York: John Wiley &Sons,(2007)
Z. Kluiber, T. Stanisic, V. Skocdopole, “The future is influenced by the Gifted”, Prague: Orbis, (2008).

Course language:
Slovak, English

Notes:	
Course assessment Total number of assessed students: 1	
N	P
0.0	100.0
Provides: doc. RNDr. Marián Kireš, PhD., doc. RNDr. Zuzana Ješková, PhD., RNDr. Ľudmila Onderová, PhD.	
Date of last modification: 03.05.2015	
Approved: prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DVYS/11	**Course name:** Presentation at a Seminar
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 10	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.	
Date of last modification:	
Approved: prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/PsVU/17	**Course name:** Psychology for University Lecturers

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 28s
Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:
Case study, micro-output, its analysis
Current modifications of the course are listed in the electronic bulletin board of the course.

Learning outcomes:
After completing the course, students can:
and Understand, summarize and explain selected psychological knowledge from cognitive psychology, emotion and motivation psychology, personality psychology, developmental, social, educational psychology and health psychology.
b) apply the above psychological knowledge necessary for the professional, competent performance of university teaching practice of doctoral students
c) to create and implement the teaching of a professional topic with applied psychological knowledge
d) evaluate their performance and the performance of their classmates, provide feedback

Brief outline of the course:
The content of the course is based on selected psychological knowledge of cognitive psychology, psychology of emotions and motivation, personality psychology, developmental, social, educational psychology and health psychology. Teaching is realized by a combination of lectures with interactive, experiential methods, discussion, open communication with mutual respect, support of independence, activity and motivation of students. Syllabus: University teacher and his work in the teaching process with a focus on: teachers in relation to themselves (cognitive, personal, social and competencies in the use of methods), in relation to students and as part of the teacher-student relationship on the basis of selected areas of cognitive psychology, psychology of emotions and motivation, developmental psychology, social psychology, educational psychology and health psychology with application to the university environment

Recommended literature:
Alexitch, L. R. (2005). Applying social psychology to education. Social Psychology.–Ed.: Schneider F., Gruman J., Coutts L.–Sage Publications, Inc, 205-228.
Fry, H., Ketteridge, S., & Marshall, S. (2008). A handbook for teaching and learning in higher education: Enhancing academic practice. Routledge.
Mareš, J.: Pedagogická psychologie. Portál, 2013.

Kniha psychologie. Universum, 2014
Čáp, J., Mareš, J.: Psychologie pro učitele. Praha: Portál 2007.
Vágnerová, M.: Školní poradenská psychológie pro pedagogy. Praha: Karolínum 2005.

Course language:
slovak

Notes:

Course assessment
Total number of assessed students: 70

abs	n	neabs
100.0	0.0	0.0

Provides: PhDr. Anna Janovská, PhD.

Date of last modification: 24.06.2022

Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DPBP/11	**Course name:** Review of Bc. Thesis
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 0	
abs	n
0.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc.	
Date of last modification:	
Approved: prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DRZZ/11	**Course name:** Reviewed International or National Proceedings
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 54

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD.
Date of last modification:
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ DSFP1/11	**Course name:** Science Exploration of Selected Physical Problems I

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: 2 **Per study period:** 28
Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course: 1.

Course level: III.

Prerequisities:

Conditions for course completion:
three semester projects (individual work on selected physical problems)
oral exam

Learning outcomes:
Presenting selected physical problems in mechanics, molecular physics, thermodynamics and thermics with the aim of a deeper understanding of the complexity of the physical phenomena around us with links to their physical interpretation related to students' knowledge level at secondary schools. Getting skills to prepare and modify selected physical problems for solving physical competitions tasks and for working with talented youth.

Brief outline of the course:
Selected problems of mechanics of particles, multiparticle systems, rigid bodies (fictitious forces in non-inertial systems, rigid body dynamics, and rotational motion): Rotational and translational motion of a cylinder, force effect of a falling chain, falling magnet in a metal tube, hourglass.
Fluid Mechanics (real fluid flow, motion in fluids): Rotation of a drowning ice cube, water current collisions, capillary waves.
Molecular Physics (molecular phenomena in liquids): Drying drops of water, kinematics of a water motion in capillaries of different radii, Reflection of water drops on hydrophobic surfaces.
Selected problems of thermodynamics: Condensation of water vapor in a saturated water solution, Ice relegation and thermal conductivity.
Selected problems of mechanical vibrations and waves (acoustics): Measuring speed of sound in liquids, Falling spring, Surface wave on water, Playing cymbals by lightning.

Recommended literature:
Hlavička, A. a kol. Fyzika pre pedagogické fakulty, SPN, Praha, 1971
Halliday, D., Resnick, R., Walker, J. Fyzika, vysokoškolská učebnice obecné fyziky, český preklad, Vysoké učení technické v Brně, nakladelstvo VUTIUM, 2000
Cummings, K., Laws, P., Redish, E., Cooney, P. Understanding physics, John Wiley & Sons, 2004
Serway, R., A., Jewet., J.,W. Principles of Physics, 2002 Thomson Learning
Sherwood, B., Chabay, R. Matter and interactions I., Modern mechanics, dostupné na Internete

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 10

N	P
0.0	100.0

Provides: prof. RNDr. Michal Jaščur, CSc., doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD.

Date of last modification: 03.05.2015

Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DSFP2/11	**Course name:** Science Exploration of Selected Physical Problems II

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: 2 **Per study period:** 28
Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course: 2.

Course level: III.

Prerequisities:

Conditions for course completion:
three semester projects (individual work on selected physical problems)
oral exam

Learning outcomes:
Presenting selected physical problems in electricity and magnetism with the aim of a deeper, unifying view and understanding fundamental theoretical knowledge together with modern trends in the field. Getting skills to prepare and modify selected physical problems with the application theme, which demonstrate the importance of physical education for society and of which interpretation is related to students' knowledge level at secondary schools.

Brief outline of the course:
Review of key concepts and principles in electricity and magnetism. Application of knowledge in different systems using computer simulations. Knowledge of theory of relativity in the context of electricity and magnetism. Microscopic view of the phenomena in electrical circuits. Selected physical problems (sparks in the air and atmospheric electricity, surface charges in circuits, accelerators and relativistic collisions of elementary particles, heart electrocardiogram, bone strength)
Review of basic concepts of condensed matter magnetism. Carriers of the magnetic moment. Magnetic properties of matter without magnetic ordering. Magnetic properties of matter with magnetic ordering. Processes of magnetic reversal. Magnetic resonance. Transport properties of semiconductors. Phenomena occurring at the interface between two semiconductors, metal and semiconductor. Applications of the theory in describing semiconductors devices.

Recommended literature:
1. R. Chabay, B. Sherwood: Matter and interactions II - Electric and Magnetic Interactions, 4th ed. J.Willey and Sons, Inc. New York, 2015
2. S. Chikazumi: Physics of Magnetism, 2nd ed. J.Willey and Sons, Inc. New York, 2009
3. H. Kronmüller: Handbook of magnetism and advanced magnetic materials, Willey, 2007
4. D.J.Roulston An Introduction to the Physics of Semiconductor Devices, Oxford University Press, 1999

Course language:

Slovak, English

Notes:

Course assessment
Total number of assessed students: 9

N	P
0.0	100.0

Provides: prof. RNDr. Andrej Bobák, DrSc., prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Jozef Hanč, PhD.

Date of last modification: 31.01.2022

Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ DVDF/11	**Course name:** Selected Chapters from Didactics of Physics

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: 2 **Per study period:** 28
Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course: 2.

Course level: III.

Prerequisities:

Conditions for course completion:
Elaboration of an up-to-date overview of trends in physical education.

Learning outcomes:
Extended and in-depth knowledge and skills from the didactics of physics towards the application of modern teaching methods, forms and didactic tools in physical education. The PhD student is oriented in current trends in physical education, has an overview of current scientific publications in the didactics of physics. He orients himself in the issues of STEM education, digital transformation and innovation in science education.

Brief outline of the course:
History of didactics of physics in Slovakia. Educational systems in Slovakia and abroad. Reforms in science education. Interactive and activating methods in science education. Modern didactic tools and organization forms. Importance of primary knowledge and its utilization in development of conceptual understanding. Evaluation of knowledge and skills. Formative assessment. Standardized international tools for evaluation (PISA, TIMSS, conceptual tests). Teacher as a creator of a grant project.

Recommended literature:
HARLEN, W. (ed.) 2010. Principles and big ideas of science education [online]. Herts: Association for Science Education. ISBN 978086357 4 313. Dostupné z: www.ase.org.uk
HARLEN, W. (ed.) 2015. Working with Big Ideas of Science Education [online]. Science Education Programme of IAP: Trieste. ISBN 9788894078404. Dostupné z: http://www.interacademies.net/
Andrade, H. (2019). A critical review of research on student self-assessment. Frontiers in Education, 4(87), pp. 1-13
Bennett, R. (2011). Formative assessment: A critical review. Assessment in Education: principles, policy & practice, 18(1), pp. 5-25.

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 10

N	P
0.0	100.0

Provides: doc. RNDr. Zuzana Ješková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Jozef Hanč, PhD., RNDr. Ľudmila Onderová, PhD.

Date of last modification: 28.09.2021

Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ DVKF1/11	**Course name:** Selected Chapters of Physics I

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: 3 **Per study period:** 42
Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course: 1., 3.

Course level: III.

Prerequisities:

Conditions for course completion:
partial assessment based on two semestral projects.
examination

Learning outcomes:
Based on the concrete goals of the student´s thesis and the extent and content of the subjects attended by the student at the master level the course will provide deeper insight into the branch of physics with regard to the thesis topic. The concrete content will be selected by the guarantee and it will include the selected parts of the physics master degree courses at Faculty of Science, UPJS Kosice (study programmes of Fm, FKLm,BFm, JSFm).

Brief outline of the course:
Based on the corresponding master degree physics course programme.

Recommended literature:
Literature corresponding to the selected physical topics
Current and up-to-date scientific publications connected with the selected physical topics

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 8

N	P
0.0	100.0

Provides: prof. RNDr. Peter Kollár, DrSc.

Date of last modification: 03.05.2015

Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/DVKF2/11	**Course name:** Selected Chapters of Physics II

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: 3 **Per study period:** 42
Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course: 1., 3.

Course level: III.

Prerequisities:

Conditions for course completion:
partial assessment based on two semestral projects.
examination

Learning outcomes:
Based on the concrete goals of the student´s thesis and the extent and content of the subjects attended by the student at the master level the course will provide deeper insight into the branch of physics with regard to the thesis topic. The concrete content will be selected by the guarantee and it will include the selected parts of the physics master degree courses at Faculty of Science, UPJS Kosice (study programmes of Fm, FKLm,BFm, JSFm).

Brief outline of the course:
Based on the corresponding master degree physics course programme: Fm, FKLm, BFm, JSFm.

Recommended literature:
Literature corresponding to the selected physical topics
Current and up-to-date scientific publications connected with the selected physical topics

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 3

N	P
0.0	100.0

Provides: prof. RNDr. Peter Kollár, DrSc.

Date of last modification: 03.05.2015

Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DMOF/11	**Course name:** Selected Topics in Modern Physics

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: 3 **Per study period:** 42
Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course: 1., 3.

Course level: III.

Prerequisities:

Conditions for course completion:
Students prepare a seminar work in form of a scientific paper, which is dealt with an application of modern physics in everyday phenomena and devices around us. The work contains not only basic physical information but also includes a correct mathematical theory describing the chosen phenomena or device. In addition the seminar work concerns visualization of the phenomena, which means using virtual PC experiments (simulations). Students can receive maximum of 50 points, the needed minimum is 26 points.
oral exam 0 to 50 points; final assessment is the result of continuous assessment and oral exam.

Learning outcomes:
Consolidating and expanding the theoretical knowledge gained from previous undergraduate studies in quantum mechanics and general relativity.
Getting a higher level of conceptual (physical) understanding and the unifying view of the fundamental principles of modern physics. Getting knowledge in application and didactic aspects of the issue (what practical applications we know; how to apply theoretical knowledge in practical tasks and applications of modern physics, with which we encounter in everyday life; what virtual PC experiments can be used; what conceptual understanding is needed).

Brief outline of the course:
Overview of basic concepts and principles of special relativity. Description of flat and curved spacetime in the vicinity of spherical objects - the Minkowski, Schwarzschild and Kerr metrics, corresponding symmetries and conservation laws, theory tests in the solar system, computer simulations as virtual experiments in relativity. Applications of theory: accelerators, modern diagnostic techniques (PET, MRI); GPS, motion around black holes, gravitational lenses.
Overview of basic concepts and principles of quantum mechanics. The standard model and elementary particles. Description of the micro-world in terms of path integrals, concept of propagator, theory application in elementary quantum systems, symmetries and their fundamental consequences for quantum statistics of multi-particle systems, conceptual issues of quantum mechanics, computer simulations as virtual experiments in quantum theory.
Applications of theory: quantum theory of conductivity in LED devices, semiconductor laser, SQUIDs sand MOSFETs

Recommended literature:

1. Moore, T. A (2017) Six Ideas That Shaped Physics - Unit C, Unit R, Unit Q, 3rd ed., Boston Mc Graw Hill, Boston
2. Hartle, J. B. (2021). Gravity: Introduction to Einstein's General Relativity, Cambridge: Cambridge University Press, 602 pp.
3. Taylor, E.F., Wheeler, J.A., Bertschinger, E. (2018) Exploring Black Holes - Introduction to General relativity, 2nd ed., 2018, https://archive.org/details/exploringblackholes
4. Rae, A.I., Napolitano, J.J (2015). Quantum mechanics, 6th ed., London: CRC Press
5. Hughes, C., Isaacson, J., Perry, A., Sun, R. F., Turner, J. (2021). Quantum Computing for the Quantum Curious. Cham: Springer International Publishing.
6. Belloni, M., Christian, W., Cox, A.J. (2022) Physlet Quantum Physics: An Interactive Introduction, London: Pearson education, 3rd ed.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 4

N	P
0.0	100.0

Provides: prof. RNDr. Peter Kollár, DrSc., prof. RNDr. Stanislav Vokál, DrSc., doc. RNDr. Jozef Hanč, PhD.

Date of last modification: 27.01.2022

Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DTVF1a/11	**Course name:** Seminar Theory of Physics Teaching I

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 1 / 1 **Per study period:** 14 / 14
Course method: present

Number of ECTS credits: 3

Recommended semester/trimester of the course: 1.

Course level: III.

Prerequisities:

Conditions for course completion:
individual presentation at the seminar, active participation at the seminars
completion

Learning outcomes:
Discuss systematically about the up-to-date problems concerning education in physics and research in the field of physics education in Slovakia and abroad in order to expand knowledge and enhance argumentation skills and competencies, use the experience and knowledge gained at study stays and national and international conferences, seminars and other events that deal with education in physics.

Brief outline of the course:
The seminar content will be updated according to the current situation and events running in the field of physics education, however generally, it will have the following structure:
• Conferences aimed at the education in physics, conference theme, invited lectures, presentations, trends and themes to foster future cooperation
• Survey of the content of journals, browsing and searching towards the certain topic
• Current events for teachers and students: goals, presentation topics, outputs
• PhD students´ presentations to the partial problems concerning their PhD thesis
• Presentations of the members of the physics education group
• Presentations of invited lectures from partner institutions

Recommended literature:
Printed and electronic up-to-date information sources
Conference proceedings, web portals of events and conferences
Journals on physics education, other publications aimed at physics education

Course language:
Slovak, English

Notes:

Course assessment Total number of assessed students: 10	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Marián Kireš, PhD.	
Date of last modification: 03.05.2015	
Approved: prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DTVF1b/11	**Course name:** Seminar Theory of Physics Teaching II
Course type, scope and the method: **Course type:** Lecture / Practice **Recommended course-load (hours):** **Per week:** 1 / 1 **Per study period:** 14 / 14 **Course method:** present	
Number of ECTS credits: 3	
Recommended semester/trimester of the course: 2.	
Course level: III.	
Prerequisities:	
Conditions for course completion: individual presentation at the seminar, active participation at the seminars completion	
Learning outcomes: Discuss systematically about the up-to-date problems concerning education in physics and research in the field of physics education in Slovakia and abroad in order to expand knowledge and enhance argumentation skills and competencies, use the experience and knowledge gained at study stays and national and international conferences, seminars and other events that deal with education in physics.	
Brief outline of the course: The seminar content will be updated according to the current situation and events running in the field of physics education, however generally, it will have the following structure: • Conferences aimed at the education in physics, conference theme, invited lectures, presentations, trends and themes to foster future cooperation • Survey of the content of journals, browsing and searching towards the certain topic • Current events for teachers and students: goals, presentation topics, outputs • PhD students´ presentations to the partial problems concerning their PhD thesis • Presentations of the members of the physics education group • Presentations of invited lectures from partner institutions	
Recommended literature: Printed and electronic up-to-date information sources Conference proceedings, web portals of events and conferences Journals on physics education, other publications aimed at physics education	
Course language: Slovak, English	
Notes:	

Course assessment Total number of assessed students: 10	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD.	
Date of last modification: 03.05.2015	
Approved: prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ DTVF2a/11	**Course name:** Seminar Theory of Physics Teaching III

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 1 / 1 **Per study period:** 14 / 14
Course method: present

Number of ECTS credits: 3

Recommended semester/trimester of the course: 1., 3.

Course level: III.

Prerequisities:

Conditions for course completion:
individual presentation at the seminar, active participation at the seminars
completion

Learning outcomes:
Discuss systematically about the up-to-date problems concerning education in physics and research in the field of physics education in Slovakia and abroad in order to expand knowledge and enhance argumentation skills and competencies, use the experience and knowledge gained at study stays and national and international conferences, seminars and other events that deal with education in physics.

Brief outline of the course:
The seminar content will be updated according to the current situation and events running in the field of physics education, however generally, it will have the following structure:
• Conferences aimed at the education in physics, conference theme, invited lectures, presentations, trends and themes to foster future cooperation
• Survey of the content of journals, browsing and searching towards the certain topic
• Current events for teachers and students: goals, presentation topics, outputs
• PhD students´ presentations to the partial problems concerning their PhD thesis
• Presentations of the members of the physics education group
• Presentations of invited lectures from partner institutions

Recommended literature:
Printed and electronic up-to-date information sources
Conference proceedings, web portals of events and conferences
Journals on physics education, other publications aimed at physics education

Course language:
Slovak, English

Notes:

Course assessment Total number of assessed students: 10	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Marián Kireš, PhD.	
Date of last modification: 03.05.2015	
Approved: prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DTVF2b/11	**Course name:** Seminar Theory of Physics Teaching IV
Course type, scope and the method: **Course type:** Lecture / Practice **Recommended course-load (hours):** **Per week:** 1 / 1 **Per study period:** 14 / 14 **Course method:** present	
Number of ECTS credits: 3	
Recommended semester/trimester of the course: 2., 4.	
Course level: III.	
Prerequisities:	
Conditions for course completion: individual presentation at the seminar, active participation at the seminars completion	
Learning outcomes: Discuss systematically about the up-to-date problems concerning education in physics and research in the field of physics education in Slovakia and abroad in order to expand knowledge and enhance argumentation skills and competencies, use the experience and knowledge gained at study stays and national and international conferences, seminars and other events that deal with education in physics.	
Brief outline of the course: The seminar content will be updated according to the current situation and events running in the field of physics education, however generally, it will have the following structure: • Conferences aimed at the education in physics, conference theme, invited lectures, presentations, trends and themes to foster future cooperation • Survey of the content of journals, browsing and searching towards the certain topic • Current events for teachers and students: goals, presentation topics, outputs • PhD students´ presentations to the partial problems concerning their PhD thesis • Presentations of the members of the physics education group • Presentations of invited lectures from partner institutions	
Recommended literature: Printed and electronic up-to-date information sources Conference proceedings, web portals of events and conferences Journals on physics education, other publications aimed at physics education	
Course language: Slovak, English	
Notes:	

Course assessment Total number of assessed students: 10	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD.	
Date of last modification: 03.05.2015	
Approved: prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DTVF3a/11	**Course name:** Seminar Theory of Physics Teaching V

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 1 / 1 **Per study period:** 14 / 14
Course method: present

Number of ECTS credits: 3

Recommended semester/trimester of the course: 5.

Course level: III.

Prerequisities:

Conditions for course completion:
individual presentation at the seminar, active participation at the seminars
completion

Learning outcomes:
Discuss systematically about the up-to-date problems concerning education in physics and research in the field of physics education in Slovakia and abroad in order to expand knowledge and enhance argumentation skills and competencies, use the experience and knowledge gained at study stays and national and international conferences, seminars and other events that deal with education in physics.

Brief outline of the course:
The seminar content will be updated according to the current situation and events running in the field of physics education, however generally, it will have the following structure:
• Conferences aimed at the education in physics, conference theme, invited lectures, presentations, trends and themes to foster future cooperation
• Survey of the content of journals, browsing and searching towards the certain topic
• Current events for teachers and students: goals, presentation topics, outputs
• PhD students´ presentations to the partial problems concerning their PhD thesis
• Presentations of the members of the physics education group
• Presentations of invited lectures from partner institutions

Recommended literature:
Printed and electronic up-to-date information sources
Conference proceedings, web portals of events and conferences
Journals on physics education, other publications aimed at physics education

Course language:
Slovak, English

Notes:

Course assessment Total number of assessed students: 7	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Marián Kireš, PhD.	
Date of last modification: 03.05.2015	
Approved: prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DTVF3b/11	**Course name:** Seminar Theory of Physics Teaching VI
Course type, scope and the method: **Course type:** Lecture / Practice **Recommended course-load (hours):** **Per week:** 1 / 1 **Per study period:** 14 / 14 **Course method:** present	
Number of ECTS credits: 3	
Recommended semester/trimester of the course: 6.	
Course level: III.	
Prerequisities:	
Conditions for course completion: individual presentation at the seminar, active participation at the seminars completion	
Learning outcomes: Discuss systematically about the up-to-date problems concerning education in physics and research in the field of physics education in Slovakia and abroad in order to expand knowledge and enhance argumentation skills and competencies, use the experience and knowledge gained at study stays and national and international conferences, seminars and other events that deal with education in physics.	
Brief outline of the course: The seminar content will be updated according to the current situation and events running in the field of physics education, however generally, it will have the following structure: • Conferences aimed at the education in physics, conference theme, invited lectures, presentations, trends and themes to foster future cooperation • Survey of the content of journals, browsing and searching towards the certain topic • Current events for teachers and students: goals, presentation topics, outputs • PhD students´ presentations to the partial problems concerning their PhD thesis • Presentations of the members of the physics education group • Presentations of invited lectures from partner institutions	
Recommended literature: Printed and electronic up-to-date information sources Conference proceedings, web portals of events and conferences Journals on physics education, other publications aimed at physics education	
Course language: Slovak, English	
Notes:	

Course assessment Total number of assessed students: 6	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD.	
Date of last modification: 03.05.2015	
Approved: prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ DTVF4a/11	**Course name:** Seminar Theory of Physics Teaching VII

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 1 / 1 **Per study period:** 14 / 14
Course method: present

Number of ECTS credits: 3

Recommended semester/trimester of the course: 7.

Course level: III.

Prerequisities:

Conditions for course completion:
individual presentation at the seminar, active participation at the seminars
completion

Learning outcomes:
Discuss systematically about the up-to-date problems concerning education in physics and research in the field of physics education in Slovakia and abroad in order to expand knowledge and enhance argumentation skills and competencies, use the experience and knowledge gained at study stays and national and international conferences, seminars and other events that deal with education in physics.

Brief outline of the course:
The seminar content will be updated according to the current situation and events running in the field of physics education, however generally, it will have the following structure:
• Conferences aimed at the education in physics, conference theme, invited lectures, presentations, trends and themes to foster future cooperation
• Survey of the content of journals, browsing and searching towards the certain topic
• Current events for teachers and students: goals, presentation topics, outputs
• PhD students´ presentations to the partial problems concerning their PhD thesis
• Presentations of the members of the physics education group
• Presentations of invited lectures from partner institutions

Recommended literature:
Printed and electronic up-to-date information sources
Conference proceedings, web portals of events and conferences
Journals on physics education, other publications aimed at physics education

Course language:
Slovak, English

Notes:

Course assessment Total number of assessed students: 6	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Marián Kireš, PhD.	
Date of last modification: 03.05.2015	
Approved: prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DTVF4b/11	**Course name:** Seminar Theory of Physics Teaching VIII

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 1 / 1 **Per study period:** 14 / 14
Course method: present

Number of ECTS credits: 3

Recommended semester/trimester of the course: 8.

Course level: III.

Prerequisities:

Conditions for course completion:
individual presentation at the seminar, active participation at the seminars
completion

Learning outcomes:
Discuss systematically about the up-to-date problems concerning education in physics and research in the field of physics education in Slovakia and abroad in order to expand knowledge and enhance argumentation skills and competencies, use the experience and knowledge gained at study stays and national and international conferences, seminars and other events that deal with education in physics.

Brief outline of the course:
The seminar content will be updated according to the current situation and events running in the field of physics education, however generally, it will have the following structure:
• Conferences aimed at the education in physics, conference theme, invited lectures, presentations, trends and themes to foster future cooperation
• Survey of the content of journals, browsing and searching towards the certain topic
• Current events for teachers and students: goals, presentation topics, outputs
• PhD students´ presentations to the partial problems concerning their PhD thesis
• Presentations of the members of the physics education group
• Presentations of invited lectures from partner institutions

Recommended literature:
Printed and electronic up-to-date information sources
Conference proceedings, web portals of events and conferences
Journals on physics education, other publications aimed at physics education

Course language:
Slovak, English

Notes:

Course assessment Total number of assessed students: 4	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD.	
Date of last modification: 03.05.2015	
Approved: prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: Dek. PF UPJŠ/JSD/14	**Course name:** Spring School for PhD Students

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 4d
Course method: present

Number of ECTS credits: 2

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:
Active participation in the Spring School of PhD students of UPJŠ.

Learning outcomes:
By actively participating in the Spring School of PhD Students of UPJŠ, the PhD student demonstrates a high level of ability to process the issues of his dissertation for a multidisciplinary audience with an emphasis on clarifying the motivation, scientific problem, processing methodology and own contribution to the solution of the selected topic. The PhD student demonstrates the ability to professionally discuss various research topics, present his own positions and accept a plurality of opinions. Demonstrates the ability to communicate research results to a wider professional audience with adequate means and through the Slovak language.

Brief outline of the course:
1. Interdisciplinary lectures from the fields of medicine, natural sciences, law, public affairs, humanities. Lecturers - top foreign or national experts from the mentioned fields.
2. Scientific lectures in sections created within related disciplines. Lecturers - top experts from UPJŠ from the mentioned fields.
3. Scientific contributions of PhD students in sections of related fields.
4. Panel discussions on the issue of PhD studies and current trends in the development of scientific disciplines at UPJŠ.

Recommended literature:
Proceedings of the Spring School of Doctoral Students.

Course language:

Notes:

Course assessment
Total number of assessed students: 187

abs	n
100.0	0.0

Provides: doc. RNDr. Marián Kireš, PhD.

Date of last modification: 08.11.2022
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DSMV/11	**Course name:** Statistical Methods in Educational Research
Course type, scope and the method: **Course type:** Lecture / Practice **Recommended course-load (hours):** **Per week:** 2 / 1 **Per study period:** 28 / 14 **Course method:** present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course: 4.	
Course level: III.	
Prerequisities:	
Conditions for course completion: Using technologies (open data science tools) students collect data from own research or find and prepare model data from an existing research for statistical analysis. Students prepare a detailed description of the theory application to model or own data in their research work in the software environment and create a report in the form of presentation. Students can receive maximum of 50 points, the needed minimum is 26 points. oral exam 0 to 50 points; final assessment is the result of continuous assessment and oral exam.	
Learning outcomes: Getting the requested overview of statistical methods and digital technologies for collecting, analyzing and interpretation of data and research results in didactics. Understanding and getting skills to apply statistical methods in various forms of didactic research (observation, pre-research, pedagogical experiment, quasi-experiment, case study, qualitative research, mixed method research, historical research). Being familiar with software technologies and its use for effective data collection. Being familiar with statistical methods and their application to obtained research data in the chosen software environment (freely available data science tools based on R and Python). Identifying and analyzing validity and reliability of statistical methods of research studied in a specific monograph or journal literature. Getting skills to apply gained knowledge in statistical analysis of own scientific research in the field of didactics.	
Brief outline of the course: Scientific methods of educational research data collection. Available software technology for immediate and long-term data collection. Descriptive statistics in educational research. Visualization and interpretation of results in a spreadsheet (Excel). Analysis in professional statistical software (free software R). Inductive statistics in educational research. Methods of inductive statistics in a spreadsheet environment and professional statistical software. Statistical analysis, processing and interpretation of various research forms in didactics (observation, pre-research, pedagogical experiment, quasi-experiment, case study, qualitative research, mixed method research, historical research). Principles of analysis and evaluation of a survey and a diagnostic test using descriptive and inductive statistics in software environment. Statistical	

methods for assessing validity and reliability of obtained data and results. Analysis and application of statistical methods in the study of scientific publications and in own research work.

Recommended literature:

1. Cumming, G., & Calin-Jageman, R. (2016). Introduction to the New Statistics: Estimation, Open Science, and Beyond (1 edition). Routledge.
2. Utts, J. M., & Heckard, R. F. (2014). Mind on Statistics (5 edition). Cengage Learning.
3. Wilcox, R. R. (2017). Understanding and Applying Basic Statistical Methods Using R (1 edition). Wiley.
4. Wintjen, M. (2020). Practical Data Analysis Using Jupyter Notebook: Learn how to speak the language of data by extracting useful and actionable insights using Python. Packt Publishing Ltd.

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 9

N	P
0.0	100.0

Provides: doc. RNDr. Jozef Hanč, PhD., Mgr. Nataša Čopíková, PhD.

Date of last modification: 30.01.2022

Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DVBP/11	**Course name:** Supervising Bc. Thesis
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 6	
Recommended semester/trimester of the course: 5., 6.., 7., 8..	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 3	

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc.
Date of last modification:
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DVPS/11	**Course name:** Supervising Student (university, high school) Scientific Work
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 6	
Recommended semester/trimester of the course: 5., 6.., 7., 8..	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 1	

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc.
Date of last modification:
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ PDS/18	**Course name:** Writing Dissertation Work
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 0	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 22	

N	P
0.0	100.0

Provides:
Date of last modification:
Approved: prof. RNDr. Peter Kollár, DrSc.