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 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: 18.02.2014
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 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: 18.02.2014
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 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: 18.02.2014
Approved: prof. RNDr. Peter Kollár, DrSc.

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 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: 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: 18.02.2014
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 credits: 5

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

Course level: III.

Prerequisities:

Conditions for course completion:
partial assessment based on: tests 20 points,
Students´ active participation 10 points
examination is aimed at the presentation of the project that students work on during the semester. The project assessment is within 0-70 points. The final assessment includes the partial assessment (30 points max.) as well as the examination - project assessment (70 points max.)

Learning outcomes:
Students are given 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. Different technologies aimed at these applications will be introduced in with regard to the methods used in teaching. The student gains skills and competencies to the effective use of these technologies with understanding of the appropriate methods aimed at scientific inquiry with active students´ participation. The level of the gained skills will be presented by design of their own activities enhanced by digital technologies for physics teaching at lower and upper secondary level.

Brief outline of the course:
Scientific inquiry in education in physics, activities aimed at inquiry
Computer modelling of physical phenomena (dynamic, static, different schools systems available)
Computer-aided experiment and its effective use in the class (methods, demonstrations, in groups, labworks, school systems available)
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)
Comparing theory and experiment (model and experimental data), model simulated for different parameters in order to get good correspondence theory vs. experiment
Students independent work on the activities aimed at different levels of inquiry enhanced by digital technologies.

Recommended literature:
Demkanin, P. a kol. Počítačom podporované prírodovedné laboratórium, FMFI UK Bratislava, 2006, ISBN:80-89186-10-6

Ješková, Z., a kol. Využitie informačných a komunikačných technológií v predmete Fyzika pre stredné školy : učebný materiál - modul 3. - 1. vyd. - Košice : Elfa, 2010. - 242 s., ISBN 978-80-8086-146-9
Duľa, I. a kol. Využitie informačných a komunikačných technológií v predmete Fyzika pre základné školy : učebný materiál - modul 3. - 1. vyd. - Košice : Elfa, 2010. - 240 s., ISBN 978-80-8086-154-4

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 6

N	P
0.0	100.0

Provides: doc. RNDr. Zuzana Ješková, PhD.

Date of last modification: 18.02.2014

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 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: 19

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: 18.02.2014
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 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: 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: 18.02.2014
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DODZ/11	**Course name:** Defence of Thesis
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of 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: 7	

N	P
0.0	100.0

Provides:
Date of last modification: 18.02.2014
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 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: 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: 18.02.2014
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 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: 5

N	P
0.0	100.0

Provides: doc. RNDr. Marián Kireš, PhD., PaedDr. Renáta Orosová, PhD.
Date of last modification: 18.02.2014
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 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: 16

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc.
Date of last modification: 18.02.2014
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 credits: 2

Recommended semester/trimester of the course: 1.

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: 374

N	Ne	P	Pr	abs	neabs
0.0	0.0	75.4	0.0	24.6	0.0

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

Date of last modification: 06.02.2014

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 credits: 3

Recommended semester/trimester of the course: 2.

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: 375

N	Ne	P	Pr	abs	neabs
0.0	0.0	88.8	2.13	9.07	0.0

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

Date of last modification: 06.02.2014

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 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: 18.02.2014
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 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: 2

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: 18.02.2014
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 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: 15

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: 18.02.2014
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 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: 2

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: 18.02.2014
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 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: 18.02.2014
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 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: 14

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc.
Date of last modification: 18.02.2014
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 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: 5

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc.
Date of last modification: 18.02.2014
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 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: 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: 18.02.2014
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 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). 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.

Recommended literature:
Creswell, J.W. (2008). Research Design: Qualitative, Quantitative and Mixed Methods Approaches, 3rd ed., London: Sage Publications, 272 pp., ISBN 141296556X
Johnson, B., Christensen, L. (2007). Educational Research: Quantitative, Qualitative and Mixed Approaches, 3rd ed., London: Sage Publications, 664 pp., ISBN 1412954568
Cox III, J.F., Schleier Jr., J. G., eds. (2010). Theory of Coinstraints - handbook, New York: McGraw Hill, 1175 pp., ISBN 9780071665551

Leach, L.P. (2000). Critical Chain Project Managment, Boston: Artech House, 330 pp., ISBN 1580530745
Pelikán, J. (2011). Základy empirického výzkumu jevů pedagogických, 2. vyd. (in Czech), Praha: Karolinum, 272 s., ISBN 978-80-246-1916-3
Gavora, P. (2001). Úvod do pedagogického výskumu (in Slovak), Bratislava: Univerzita Komenského, 236 s. ISBN 8022316288
Chráska, M. (2007). Metody pedagogického výzkumu: Základy kvantitatívního výzkumu (in Czech), Praha: Grada, 265 s., ISBN 9788024713694

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 5

N	P
0.0	100.0

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

Date of last modification: 18.02.2014

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 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:
Student gets familiar with the modern digital educational Technologies, their possibilities of their effective use in education. Within the practice they will be training the basic skills in manipulating the devices and handling the technologies. They gain the skills to handle these technologies within the examples of the concrete educational activities. The technologies are strongly connected to the methods used in teaching and the content of the education in physics in order to develop the scientific and digital literacy of the students.

Brief outline of the course:
1. Digital tools for the modern teacher - technological development and the profile of the graduate, modern digital tools to schools
2. School documentation on-line
documents, gallery of the objects, working calendars
3. Digital workplace of the modern teacher
cooperation and the use of the basic computer peripheries
4. The science classroom for inquiry
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. The use of interactive educational systems in education
interactive whiteboard, interactive response system, tablet
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:

Penuel, W.R., Boscardin, Ch. K., Masyn, K., Crawford, V.M. (2007). Teaching with student response systems in elementary and secondary education settings: A survey study, časopis Educational Technology, Research and Development, Vol. 55 (4), s. 315-346
Kireš, M. a kol.: Moderná didaktická technika v práci učiteľa : Učebný materiál k modulu 2. - 1. vyd. - Košice : Elfa, 2010. - 200 s., ISBN 978-80-8086-135-3
Ješková, Z., a kol. Využitie informačných a komunikačných technológií v predmete Fyzika pre stredné školy : učebný materiál - modul 3. - 1. vyd. - Košice : Elfa, 2010. - 242 s., ISBN 978-80-8086-146-9
Duľa, I. a kol. Využitie informačných a komunikačných technológií v predmete Fyzika pre základné školy : učebný materiál - modul 3. - 1. vyd. - Košice : Elfa, 2010. - 240 s., ISBN 978-80-8086-154-4

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 7

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: 18.02.2014

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 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 their benefits for science 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:
Bransford, J.D., Brown, A.I., Cocking, R.R. How people learn: Brain, mind, experience and school. Washington, DC:National Academy Press, 1999. Dostupné na internete <http://www.nap.edu/openbook.php?record_id=6160&page=R1>
Inquiry Resources." The Exploratorium: Institute for Inquiry. 2003. 9 June 2003. dostupné na <http://www.exploratorium.edu/IFI/resources/index.html.>
Rocard, M., Csemely, P., Jorde, D., Leenzen, D., Walberg-Henriksson, Hemmo, V. Science Education now: A Renewed Pedagogy for the Future of Europe, European Communities, 2007, ISBN – 978-92-79-05659-8
Wieman, C. , Perkins, K. Transforming Physics Education. In: Physics Today, roč. 58, č. 11, 2005, s. 36 – 41. dostupné na <http://menem.com/~ilya/wiki/images/f/fc/Wieman-perkins-05.pdf>

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 7

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: 18.02.2014

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 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: 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: 18.02.2014
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 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: 6

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: 18.02.2014
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 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: 18.02.2014
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 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: 2

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: 18.02.2014
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 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: 2

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: 18.02.2014
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 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: 0	
N	P
0.0	0.0
Provides: doc. RNDr. Marián Kireš, PhD., doc. RNDr. Zuzana Ješková, PhD., RNDr. Ľudmila Onderová, PhD.	
Date of last modification: 18.02.2014	
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 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: 6

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: 18.02.2014
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 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: 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: 18.02.2014
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 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: 18.02.2014
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 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: 7

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: 18.02.2014

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 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:
R. Chabay, B. Sherwood: Matter and interactions II - Electric and Magnetic Interactions, J.Willey and Sons, Inc. New York, 2007
S. Chikazumi: Physics of Magnetism, J.Willey and Sons, Inc. New York, London, Sydney, 1997
H. Kronmüller: Handbook of magnetism and advanced magnetic materials, Willey, 2007R.
Dalven, Introduction to applied solid state physics, Plenum press, 1990
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: 7

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: 18.02.2014

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 credits: 5

Recommended semester/trimester of the course: 2.

Course level: III.

Prerequisities:

Conditions for course completion:
project work
Project: 40 points + Exam: 60 points

Learning outcomes:
To widen the knowledge from didactics of physics towards familiarization with modern teaching methods, forms and tools in physics 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. Standardized international tools for evaluation (PISA, TIMSS, conceptual tests). Teacher as a creator of a grant project.

Recommended literature:
Janovič, J. a kol.: Didaktika fyziky, MFF UK Bratislava, 1990
Janovič, J. a kol.: Vybrané kapitoly didaktiky fyziky, MFF UK Bratislava, 1999
Kašpar, E. a kol.: Didaktika fyziky, SPN Praha, 1978
Mechlová, E.: Didaktika fyziky 1, 2, PdF Ostrava, 1989
Fenclová, J. Úvod do teórie a metodológie didaktiky fyziky, SPN Praha, 1982
Učebnice fyziky pre rozličné stupne škôl

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 7

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: 18.02.2014
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 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: 5

N	P
0.0	100.0

Provides: prof. RNDr. Peter Kollár, DrSc.

Date of last modification: 18.02.2014

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 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: 18.02.2014

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 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:

Hartle, J. B. (2003). Gravity: Introduction to Einstein's General Relativity, San Francisco: Addison Wesley
Taylor, E.F., Wheeler, J.A. (2000). Exploring Black Holes: Introduction to General Relativity, San Francisco: Addison Wesley
Schutz, B. (2004). Gravity from Ground Up: An Introductory Guide to Gravity and General Relativity, Cambridge: Cambridge University Press
Sakurai, J.J., Napolitano, J.J (2010). Modern Quantum mechanics, 2nd ed., New York: Addison Wesley
Zajonc, A.G., Greenstein, G. (2006), The Quantum Challenge: Modern Research on the Foundations of Quantum mechanics, Boston: Jones and Barlett publishersBelloni, M., Christian, W., Cox, A.J., Physlet Quantum Physics: An Interactive Introduction, London: Pearson education
Wittmann, M.C., Steinberg, R.N., Redish, E.F. (2005), Activity-Based Tutorials 2: Modern Physics, New York: John Wiley and Sons

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: 18.02.2014

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 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: 7	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Marián Kireš, PhD.	
Date of last modification: 18.02.2014	
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 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: 7	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD.	
Date of last modification: 18.02.2014	
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 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: 5	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Marián Kireš, PhD.	
Date of last modification: 18.02.2014	
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 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: 5	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD.	
Date of last modification: 18.02.2014	
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 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: 1	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Marián Kireš, PhD.	
Date of last modification: 18.02.2014	
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 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: 1	
abs	n
100.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD.	
Date of last modification: 18.02.2014	
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 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: 0	
abs	n
0.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Marián Kireš, PhD.	
Date of last modification: 18.02.2014	
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 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: 0	
abs	n
0.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc., doc. RNDr. Zuzana Ješková, PhD.	
Date of last modification: 18.02.2014	
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 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: 52

abs	n
100.0	0.0

Provides: doc. RNDr. Vladimír Zeleňák, PhD.
Date of last modification: 06.03.2014
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 credits: 5

Recommended semester/trimester of the course: 4.

Course level: III.

Prerequisities:

Conditions for course completion:
Using technologies 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 (spreadsheet - Excel and professional software R). 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:

Glass, G.V., Hopkins, K.D. (2008), Statistical methods in Educaton and Psychology, 3rd ed., Boston: Allyn & Bacon
Heiberger, R. M., Neuwirth, E. (2009) R Through Excel: A Spreadsheet Interface for Statistics, Data Analysis and Graphics, Springer
Crawley, M.J. (2005), Statistics: An Introdution using R, New York: Wiley
Utts, J.M. (2005), Seeing Through Statistics, London: Thomson Brooks/Cole
Anděl, J. (2005), Základy matematické statistiky, Praha: MatFyzPress (In Czech)
Zvára, K., Ščepán, J. (2001), Pravděpodobnost a matematická statistika, Praha: MatFyzPress, (in Czech)
Řezanková, H. (2010), Analýza dat z dotazníkových šetření, Praha: Professional Publishing, (in Czech)

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 5

N	P
0.0	100.0

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

Date of last modification: 18.02.2014

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 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: 0	
abs	n
0.0	0.0
Provides: prof. RNDr. Peter Kollár, DrSc.	
Date of last modification: 18.02.2014	
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 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: 0	

abs	n
0.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc.
Date of last modification: 18.02.2014
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DDZS/11	**Course name:** Thesis Examination
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of 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: 5	

N	P
0.0	100.0

Provides:
Date of last modification: 18.02.2014
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DDZ1/11	**Course name:** Thesis I
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 10	
Recommended semester/trimester of the course: 5., 6..	
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: 18.02.2014
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DDZ2/11	**Course name:** Thesis II
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 30	
Recommended semester/trimester of the course: 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: 5	

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc.
Date of last modification: 18.02.2014
Approved: prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ DPDS/11	**Course name:** Written Report to the Thesis Exam

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

Number of credits: 20

Recommended semester/trimester of the course: 3., 4..

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: 5

abs	n
100.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc.

Date of last modification: 18.02.2014

Approved: prof. RNDr. Peter Kollár, DrSc.