CONTENT

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ AIM/22	**Course name:** Application of ICT into mathematics teaching

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: 3.

Course level: II.

Prerequisities: ÚMV/DDMb/22

Conditions for course completion:
To master specific means of information and communication technologies usable for the support of mathematical education and for solving various types of mathematical problems. To be able to assess and evaluate the suitability and ways of using selected types of modern technologies to support active learning of mathematics. To be able to apply the basic principles of constructivism and research approaches to the teaching of mathematics in the planning and preparation of the teaching of mathematics. To be able to find and prepare ideas and examples for meaningful and effective use of information and communication technologies in the teaching process, to point out several possibilities of solving mathematical problems.
Rating:
Entry questionnaire - 2 b.
Design and solution of motivational word problems for the use of systems of linear equations - 5 b.
Test for the application of a spreadsheet in solving mathematical problems - 4 b.
Project for the application of the EUR model or research-oriented teaching in teaching a selected topic - 10 b.
Didactic processing of a selected construction task - 5 b.
Test for solving construction tasks - 4 b.
Participating in a discussion forum - 2 b.
Use of CAS in solving tasks - 5 b.
Design of examples for the use of CAS in teaching mathematics - 8 b.
Classification scale:
A: 91 % - 100 %, B: 81 % - 90 %, C: 71 % - 80 %, D: 61 % - 70 %, E: 51 % - 60 %, FX: 0 % - 50 %.

Learning outcomes:
Students will learn standard work procedures for the use of modern information and communication technologies in solving mathematical problems. Students will be provided with examples and suggestions for the use of modern information technologies in creating a stimulating learning environment supporting active learning mathematics. Students will gain skills in the use of modern information technologies in modeling real situations and exploring mathematical patterns. Development of creative and evaluation skills of students to plan and prepare the teaching of

specific topics in school mathematics with effective and meaningful use of modern information technologies.

Brief outline of the course:
1. Integration of modern information technologies into mathematical education.
2. - 3. Possibilities of using mathematical tools of a spreadsheet in modeling and solving algorithmic problems in teaching mathematics.
4. - 5. Constructivist conception of teaching mathematics, research of properties of mathematical objects and their mutual relations.
6. - 7. Solving construction tasks, examining the properties of identical and similar transformations and their use in solving problems.
8. Possibilities of using dynamic geometric systems in solving selected types of stereometry tasks.
9. - 10. Mathematical modeling and problem solving in the CAS environment. The position of CAS in the teaching of mathematics.

Recommended literature:
Oldknow, A., Taylor, R., Tetlow, L.: Teaching Mathematics Using ICT, Bloomsbury Publishing, 2010.
Lukáč, S.: Multimédiá a počítačom podporované učenie sa v matematike, PF UPJŠ Košice 2001.
Johnston-Wilder, S., Pimm, D.: Teaching secondary mathematics with ICT, Open University Press, 2005.
Vaníček, J.: Počítačové kognitivní technologie ve výuce geometrie. Pedagogická fakulta Univerzity Karlovy, 2009.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 223

A	B	C	D	E	FX
44.84	27.8	15.7	7.17	4.48	0.0

Provides: doc. RNDr. Stanislav Lukáč, PhD.

Date of last modification: 19.04.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/APM/19	**Course name:** Applications of mathematics

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: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
Presentation on the chosen topic during the seminar.

Learning outcomes:
Students get an overview of applications of mathematics and its tools in various areas of human activity.

Brief outline of the course:
1. Applications of graphs in analysis of complex networks, their central actors and their community structure.
2. Statistical methods used in shape recognition (geometric morphometrics, principal component analysis, linear regression) with application in the analysis of dinosaur skulls and other examples of the use of shape recognition in practice.

Recommended literature:
1. E. A. Robinson, D. H. Ullmann: A mathematical look at politics, CRC Press, 2010.
2. U. Brandes, T. Erlebach: Network Analysis: Methodological Foundations (Lecture Notes in Computer Science, 3418), 2005.
3. Karchynskaya, V., Kopčáková, J., Klein, D., Gába, A., Madarasová-Gecková, A., van Dijk, J. P., de Winter, A. F. a Reijneveld, S. A. (2020). Is BMI a Valid Indicator of Overweight and Obesity for Adolescents? Int. J. Environ. Res. Public Health, 17, 4815.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 28

A	B	C	D	E	FX
82.14	17.86	0.0	0.0	0.0	0.0

Provides: prof. RNDr. Tomáš Madaras, PhD., RNDr. Lenka Halčinová, PhD., prof. RNDr. Ondrej Hutník, PhD., doc. RNDr. Daniel Klein, PhD., Mgr. Martin Vodička, Dr. rer. nat., RNDr. Jaroslav Šupina, PhD.
Date of last modification: 25.08.2022
Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ ASFU/22	**Course name:** Astrophysics

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: 2

Recommended semester/trimester of the course: 3.

Course level: II.

Prerequisities:

Conditions for course completion:
To successfully complete the course, the student must demonstrate sufficient understanding of the basic knowledge of the structure and evolution of the universe. Knowledge of the basic properties of stars and methods of their determination, the structure, evolution and energy sources of stars, the structure of matter in the universe and its evolution is required. The condition for obtaining credits is passing a written or oral exam, preparation, and presentation of a semester essay. The credit evaluation of the course considers the following student workload: direct teaching (1 credit) and assessment (1 credits). The minimum threshold for completing the course is to obtain at least 50% of the total score, using the following rating scale: A (90-100%), B (80-89%), C (70-79%), D (60- 69%), E (50-59%), Fx (0-49%).

Learning outcomes:
After completing the lectures, the student will master the basic knowledge about the properties of stars and methods of their determination, structure, evolution and energy sources of stars, the structure of matter in the universe and its evolution. It will also have sufficient physical knowledge and mathematical apparatus to enable independent solving of a various tasks related to astrophysical research.

Brief outline of the course:
1. Basic properties of stars and methods of their determination: radiation flux, apparent and absolute magnitude, distances of stars, colors of stars.
2. Temperature of stars, black body radiation, spectra of atoms and molecules, non-thermal radiation.
3. Spectral classifications, luminosity classes, HR diagram, masses of stars.
4. Structure of stars: basic equations of stellar structure, transfer of energy by radiation and convection, production of energy in stars, fusion reactions.
5. Evolution of stars: interstellar matter and formation of stars and stellar systems, Jeans' criterion, protostars.
6. Evolution of stars: main sequence stars, giants, final stages of star evolution - white dwarfs, neutron stars and black holes.
7. Distribution of matter in the universe: Milky Way, its structure, dynamics, and evolution, types of galaxies, quasars, intergalactic matter, local group of galaxies.

8. Clusters and super-clusters of galaxies, large-scale structure of the universe, dark matter, and dark energy.
9. Evolution of the universe: historical development of views on the universe, Olberson's paradox, gravitational paradox, Cosmological principle.
10. Isotropicity and homogeneity of the universe, relic radiation, expansion of the universe. Steady state theory.
11. Relativistic cosmology: cosmological solutions of Einstein's equations, models of the universe and their properties, theory of the expanding universe, the Big Bang, the age of the universe.
12. Origin of the universe: the initial stages of the expansion of the universe, inflationary expansion and nucleogenesis, the formation of galaxies and galaxy clusters.

Recommended literature:

1. Carroll, B. W., Ostlie, D. A., An Introduction to Modern Astrophysics, Addison-Wesley Publishing Company, Reading, Massachusetts, 1996;
2. Contopoulos, D. Kotsakis, Cosmology, the structure and evolution of the Universe, Springer, 1984;
3. Pasachoff, J.M., Filippenko, A., The Cosmos: Astronomy in the New Millennium, Cambridge University Press, 2013;
4. Vanýsek, V., Základy astronomie a astrofyziky, Academia, Praha,1980;
5. Čeman, R., Pittich, E., Vesmír 1 - Slnečná sústava, MAPA Slovakia, Bratislava, 2002;
6. Čeman, R., Pittich, E., Vesmír 2 - Hviezdy - Galaxie, MAPA Slovakia, Bratislava, 2003;

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 34

A	B	C	D	E	FX
58.82	35.29	5.88	0.0	0.0	0.0

Provides: doc. RNDr. Rudolf Gális, PhD.

Date of last modification: 06.09.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/SNP/09	**Course name:** Bullying, Violence and Their Prevention

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., 3.

Course level: II.

Prerequisities:

Conditions for course completion:
Active participation in seminars. Detailed information will be given.
Active participation - 20%
Seminar work - 40%
Seminar work 2 - 40%

Learning outcomes:
Knowledge: the graduate of the course can summarize the latest knowledge about bullying in schools and its consequences.
Skills. The student is able to analyse problem situations related to bullying and solve them. The student will develop professional skills through the implementation of prevention activities in seminars.
Competences. The graduate of the course is sensitive to the issue of bullying, knows how to identify bullying in the early stages and prevent it from developing into serious forms.

Brief outline of the course:
Aggressive behavior. Characteristics of actors of bullying (personality, characteristics of family environment). Manifestations and possible causes of bullying. Bullying as a group process. The role of teacher, school and parent in solving bullying. Possibilities of prevention of bullying at the level of school, class, individuals. Primary, secondary and tertiary prevention. Socio-psychological activities used in the prevention of bullying.

Recommended literature:
Kolář, M.: Bolest šikanování. Cesta k zastavení epidemie šikanování ve školách. Portál, Praha, 2001
Jánošová a kol. Psychologie školní šikany. Grada, Praha, 2016
Říčan, P.: Agresivita a šikana mezi dětmi. Portál, Praha, 1995
Janošová, P., Kollerová, L., Cakirpaloglu, P., & Vorlíček, R. (2023). Empatie žáků vůči šikanovaným spolužákům. Československá psychologie, 67(1), 1-14.

Course language:

Notes:

Course assessment
Total number of assessed students: 243

A	B	C	D	E	FX
87.24	11.52	0.82	0.41	0.0	0.0

Provides: doc. Mgr. Mária Bačíková, PhD.

Date of last modification: 03.09.2024

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPO/ SDaM/15	**Course name:** Child and Adolescent Sociology

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: 2

Recommended semester/trimester of the course: 3.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 1014

A	B	C	D	E	FX
49.9	28.9	14.89	3.85	1.78	0.69

Provides: doc. Mgr. Alexander Onufrák, PhD.

Date of last modification: 29.08.2024

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ MT/09	**Course name:** Class Management

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: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 613

A	B	C	D	E	FX
52.04	35.4	9.79	1.47	0.49	0.82

Provides: doc. PaedDr. Renáta Orosová, PhD., Mgr. Zuzana Vagaská, PhD.

Date of last modification: 12.03.2024

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/MPPc/15	**Course name:** Continuous Practice Teaching I

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 3.

Course level: II.

Prerequisities: ÚFV/MPPb/15

Conditions for course completion:
Confirmed list of sittings in on classes and teaching as a confirmation of attendance in the required extent of 6 lessons of sitting in on classes and 18 physics lessons taught by student. Lesson records and written preparation for the lessons.

Learning outcomes:
Student gains under the guidance of teacher trainer practical teaching skills within the subject of Physics.

Brief outline of the course:
Sitting in on classes, teaching physics lessons by student, consulted with teacher trainer, analysis of observed and taught lessons.

Recommended literature:
Textbooks for lower and upper secondary school physics

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 37

abs	n
100.0	0.0

Provides: doc. RNDr. Jozef Hanč, PhD.

Date of last modification: 03.05.2015

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/MPPd/15	**Course name:** Continuous Practice Teaching II

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 6t
Course method: present

Number of ECTS credits: 2

Recommended semester/trimester of the course: 4.

Course level: II.

Prerequisities: ÚFV/MPPc/15

Conditions for course completion:
Confirmed list of sittings in on classes and teaching as a confirmation of attendance in the required extent of 8 lessons of sitting in on classes and 30 physics lessons taught by student. Lesson records and written preparation for the lessons.

Learning outcomes:
Student gains under the guidance of teacher trainer practical teaching skills within the subject of Physics.

Brief outline of the course:
Sitting in on classes, teaching physics lessons by student, consulted with teacher trainer, analysis of observed and taught lessons.

Recommended literature:
Textbooks for lower and upper secondary school physics

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 33

abs	n
100.0	0.0

Provides: doc. RNDr. Jozef Hanč, PhD.

Date of last modification: 03.05.2015

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ VSPc/15	**Course name:** Continuous practice teaching I
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week: Per study period:** 4t **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 3.	
Course level: II.	
Prerequisities: ÚMV/VPPb/15	
Conditions for course completion: Teaching of a specified number of hours and visitations of specified number of classes (18 teaching and 6 visitation of classes). Submission of written assignments (reflection on teaching practice, statement of teaching hours and classes visitations, selected lesson plans).	
Learning outcomes: Application of the knowledge acquired in didactic courses focused on teaching mathematics in pedagogical practice. Development of the student's self-reflection within the framework of the analysis of the lessons taught by the student. Identification of the student's weaknesses in order to shift his/her knowledge. Acquaint students with the atmosphere and the organization of school.	
Brief outline of the course: Visitations of classes in selected lessons Analysis of lessons Lesson plans preparation Classes managed according to prepared lesson plan Reflection on realized classes	
Recommended literature: Mathematics curricula and textbooks for middle and secondary schools Hejný, M.: Teória vyučovania matematiky 2. Bratislava : SPN 1989 M. Hejný, J. Novotná, N. Stehlíková: Dvacet pět kapitol z didaktiky matematiky 2, Univerzita Karlova v Praze - Pedagogická fakulta, Praha, 2004	
Course language: Slovak	
Notes:	

Course assessment
Total number of assessed students: 130

abs	n
100.0	0.0

Provides: doc. RNDr. Ingrid Semanišinová, PhD., RNDr. Veronika Hubeňáková, PhD.

Date of last modification: 24.08.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ VSPd/15	**Course name:** Continuous practice teaching II
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week: Per study period:** 6t **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 4.	
Course level: II.	
Prerequisities: ÚMV/VSPc/15	
Conditions for course completion: Teaching of a specified number of hours and visitations of specified number of classes (30 teaching and 8 visitation of classes). Submission of written assignments (reflection on teaching practice, statement of teaching hours and classes visitations, selected lesson plans).	
Learning outcomes: Application of the knowledge acquired in didactic courses focused on teaching mathematics in pedagogical practice. Development of the student's self-reflection within the framework of the analysis of the lessons taught by the student. Identification of the student's weaknesses in order to shift his/her knowledge. Acquaint students with the atmosphere and the organization of school.	
Brief outline of the course: Visitations of classes in selected lessons Analysis of lessons Lesson plans preparation Classes managed according to prepared lesson plan Reflection on realized classes	
Recommended literature: Mathematics curricula and textbooks for middle and secondary schools Hejný, M.: Teória vyučovania matematiky 2. Bratislava : SPN 1989 M. Hejný, J. Novotná, N. Stehlíková: Dvacet pět kapitol z didaktiky matematiky 2, Univerzita Karlova v Praze - Pedagogická fakulta, Praha, 2004	
Course language: Slovak	
Notes:	

Course assessment
Total number of assessed students: 101

abs	n
100.0	0.0

Provides: doc. RNDr. Ingrid Semanišinová, PhD., RNDr. Veronika Hubeňáková, PhD.

Date of last modification: 24.08.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ TTUP/15	**Course name:** Creating Text Teaching Aids

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: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 278

A	B	C	D	E	FX
57.55	31.29	7.91	2.52	0.72	0.0

Provides: doc. PaedDr. Renáta Orosová, PhD., Mgr. Zuzana Vagaská, PhD.

Date of last modification: 12.03.2024

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPPaPZ/VPU/17	**Course name:** Developmental Psychology for Teachers

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., 3.

Course level: II.

Prerequisities:

Conditions for course completion:
active participation in seminars - 20%
seminar work according to the current instructions on the electronic bulletin board- 40%
final test - 40%
Detailed and updated information will be posted on the electronic board

Learning outcomes:
The graduate will understand the principles of developmental psychology, and will be able to characterize the norm in separate developmental stages with a specific focus on the period of school age and adolescence. As part of the seminar work, a students will process current knowledge published in foreign journals. They will have a knowledge about the current social discourse on the topics covered. The graduate will be able to consider various aspects of the possible influence of parents and friends on the development of piupils and apply the knowledge of developmental psychology in the practice of the teacher.

Brief outline of the course:
Determinants and factors of development, cognitive development, personality development. Socialization in separate developmental stages (family, peers, school). Specifics of development in the period of school age, in pubescence and adolescence. Parents and their role in child development. Application of knowledge of developmental psychology in the teacher's practice - communication with students in different developmental stages, creating a teacher-student relationship with respect to the development needs of the student.

Recommended literature:
Bačíková a kol. (2023). Keď dieťa potrebuje nielen psychológa. Grada publishing.
Vágnerová, M. Vývojová psychologie. Portál, Praha 2000
Říčan, P. Cesta životem. Portál, Praha, 2004.
Thorová, K. Vývojová psychologie. Portál, Praha, 2015.
Macek, P. Adolescence. Praha: Portál, 2003
Matějček, Z. - rôzne diela
Bačíková, M. Psychológia rodičovskej kontroly, Šafárik Press, Košice 2019

Course language:

Notes:

Course assessment
Total number of assessed students: 135

A	B	C	D	E	FX
79.26	15.56	2.96	2.22	0.0	0.0

Provides: doc. Mgr. Mária Bačíková, PhD.

Date of last modification: 03.09.2024

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ DF1/22	**Course name:** Didactics of Physics I

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

Number of ECTS credits: 4

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
semester work:
elaborated online assignments in lms.upjs.sk
analysis of model methodologies
elaboration and presentation of own educational activity
oral examination:
clarification of two topics from subject didactics
clarification of the thematic unit
presentation of model methodology

Learning outcomes:
Knowledge and skills in the field of Physics education, overview about the problems of Physics education, basic skills necessary to prepare and quide educational activities, school experiments, problem solving and to use modern media for physics education.

Brief outline of the course:
Within the Didactics of Physics subject the core problems of physics education are introduced and case studies of their solving are interpreted. Strategies on design and implementation of educational activities, their evaluation and the use of modern media are introduced and corresponding skills are trained.

Recommended literature:
e- version of schoolbook Physics for lower secondary school

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 35

A	B	C	D	E	FX
62.86	31.43	2.86	0.0	0.0	2.86

Provides: doc. RNDr. Marián Kireš, PhD., RNDr. Katarína Kozelková, PhD.
Date of last modification: 07.09.2021
Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DF2/22	**Course name:** Didactics of Physics II

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

Number of ECTS credits: 4

Recommended semester/trimester of the course: 3.

Course level: II.

Prerequisities: ÚFV/DF1/22

Conditions for course completion:
teaching plan for two lessons 10p
micro teaching activities 20p
educational project 20p
answering questions during the course 10p
end-of course oral examination 40p

Learning outcomes:
knowledge and skills in the field of Physics education, overview about the problems of Physics education, basic skills necessary to prepare and quide educational activities, school experiments, problem solving and to use modern media for physics education

Brief outline of the course:
1. Didactic methods, forms and tools in physics education
2. Graphs in education
3. Control, evaluation and assessment of students results,
4. Tests
5. Everyday physics and its application in education
6. Computer based measurements:
7. Using of Internet and multimedia in education
8. IBSE
9. Informal activities to support physics education
10. Life long learning, science teacher training
11. 12. Semestral project presentation

Recommended literature:
1.J. Janovič a kol.: Didaktika fyziky, MFF UK Bratislava, 1990
2.J. Janovič a kol.: Vybrané kapitoly didaktiky fyziky, MFF UK Bratislava, 1999
3.E. Kašpar a kol.: Didaktika fyziky, SPN Praha, 1978
4.E. Mechlová: Didaktika fyziky 1, 2, PdF Ostrava, 1989
5.J. Fenclová: Úvod do teórie a metodológie didaktiky fyziky, SPN Praha, 1982
6.Vachek, J. a kol.: Fyzika pre 1. ročník gymnázia. SPN, Bratislava, 1984.
7.Svoboda, E. a kol. Fyzika pre 2. ročník gymnázia. SPN, Bratislava, 1985.

8.Lepil, O. a kol.: Fyzika pre 3. ročník gymnázia. SPN, Bratislava, 1986.
9.Pišút, J. a kol.: Fyzika pre 4. ročník gymnázia. SPN, Bratislava, 1987.
10.Scholtz, E., Kireš, M.: Fyzika - Kinematika pre osemročné gymnáziá, SPN, Bratislava, 2001, 104 strán, ISBN 80-08-02848-3
11.Blaško, M., Gajdušek, J., Kireš, M., Onderová, Ľ.: Molekulová fyzika a termodynamika pre osemročné gymnáziá, SPN, Bratislava, 2004, 120 strán, ISBN 80-10-00008-6
12.Scholtz, E., Kireš, M.: Fyzika - Dynamika pre osemročné gymnáziá, SPN, Bratislava, 2007, 231 strán, ISBN 80-10-00013-2
School textbooks for Physics education at upper secondary level

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 34

A	B	C	D	E	FX
76.47	14.71	5.88	0.0	0.0	2.94

Provides: doc. RNDr. Marián Kireš, PhD., RNDr. Katarína Kozelková, PhD.

Date of last modification: 07.09.2021

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ DDMa/22	**Course name:** Didactics of mathematics 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: 2

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
Active participation - 40% of assessment
Seminar works - 60% of assessment

Learning outcomes:
The student understands the term function and its various aspects also in the context of different definitions of the term function. He looks critically at the school curriculum from the point of view of the development of the concept of function. It characterizes high-quality formative assessment and can react differently to correct and incorrect student solutions. He applies the acquired knowledge in the design of the lesson plan. He knows the MTSK model and knows how to use it as a tool for his self-reflection.

Brief outline of the course:
The concept of function in mathematics, its aspects, and definitions. The concept of function in the school curriculum, knowledge of the structure of mathematics with respect to the concept of function. Proximal formative assessment, knowledge of the characteristics of learning mathematics. Instrumented formative assessment with a focus on the use of digital technologies for assessment in mathematics. Selection of tasks and digital tools for teaching functions. MTSK model as a tool for teacher self-reflection.

Recommended literature:
Slovak and Czech mathematics textbooks for secondary education. National mathematics curriculum of Slovakia, Czech republic and USA.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 144

A	B	C	D	E	FX
45.83	34.03	11.81	5.56	2.78	0.0

Provides: doc. RNDr. Ingrid Semanišinová, PhD.
Date of last modification: 26.08.2022
Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ DDMb/22	**Course name:** Didactics of mathematics II

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

Number of ECTS credits: 5

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities: ÚMV/DDMa/22

Conditions for course completion:
Conditions for continuous evaluation:
1. Participation in teaching in accordance with the study rules and instructions of the teacher.
2. Activity at seminars.
3. Homework and continuous written tests.
4. Seminar work - creation of an output didactic test
Conditions for successful completion of the course:
1. Participation in teaching in accordance with the study regulations and according to the instructions of the teacher;
2. Credits will be awarded to a student who obtains at least 50% of points from homework, at least 50% of points
from written tests, at least 50% of points from the seminar work and at least 50% from the oral exam.
3. Continuous assessment - 60% of the total assessment, oral exam - 40% of the overall assessment
At least 90% of points must be obtained to obtain an A rating, at least 80% to obtain a B rating, at least 70% to obtain a C rating, at least 60% to obtain a D rating, and at least 50% points to obtain an E rating.

Learning outcomes:
Students will learn the basic principles of teaching mathematics in secondary and primary schools, strategies for solving problems, creating problem systems, logical-didactic analysis of the curriculum and creating didactic tests. At the same time, they will demonstrate the ability to prepare for teaching specific topics with priority in primary school.

Brief outline of the course:
1. Subject of Didactics of Mathematics, the development of mathematics and mathematics education.
2. Aims and objectives of mathematics teaching
3. Planning in mathematics teaching Logical and didactical curriculum analysis Determination of learning objectives
4. - 5. Didactical principles, methods of mathematics teaching
6. - 7. Assessment of learning outcomes, the creation of didactic tests
8. Mathematical problems

9. - 10. Construction numeric fields,
11. Theory of elementary functions,
12. - 13. Synthetic and analytic geometry

Recommended literature:

[1] M.Hejný a kol.: Teorie vyučovania matematiky, SPN Blava 1989, (in slovak)
[2] L.Frantíková,K.Hončarivová,O.Kopanev: Didaktika matematiky, UPJŠ 1982 (in slovak)
[3] R.Fischer,G.Malle: Človek a matematika, SPN Bratislava 1992 (in slovak)
[4] Polya, G.: How to solve it, Princeton University Press, 1957.
[5] Hejný, M., Kuřina, F.: Dítě, škola a matematika: Konstruktivistické přístupy k vyučování. Portál, Praha 2001. (in czech)
[5] Textbooks and collections of assignments for secondary and primary schools

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 133

A	B	C	D	E	FX
36.09	31.58	21.05	8.27	3.01	0.0

Provides: RNDr. Veronika Hubeňáková, PhD.

Date of last modification: 05.05.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ DDMc/22	**Course name:** Didactics of mathematics III

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

Number of ECTS credits: 5

Recommended semester/trimester of the course: 3.

Course level: II.

Prerequisities: ÚMV/DDMb/22

Conditions for course completion:
Conditions for continuous evaluation:
1. Participation in teaching in accordance with the study rules and instructions of the teacher.
2. Activity.
3. Homework and written tests.
4. Seminar work and its presentation at the seminar - lesson plan on the selected topic
Conditions for successful completion of the course:
1. Participation in teaching in accordance with the study regulations and according to the instructions of the teacher;
2. Credits will be awarded to a student who scores at least 50% on homework assignments, at least 50% on written tests, and at least 50% on a seminar work. A grade of A requires at least 90%, a grade of B requires at least 80%, a grade of C requires at least 70%, a grade of D requires at least 60%, and a grade of E requires at least 50%.

Learning outcomes:
The student demonstrates a shift in students' cognitive understanding specifically by orienting to some familiar general student problems (e.g., distinguishing between sentences and definitions) and to specific problems in some areas of mathematics (e.g., incorrect use of the equals sign) when solving a homework assignment.
While solving problems on written tests, the student will show that he or she has a conceptual understanding of mathematical concepts, properties and methods from school mathematics and is familiar with some standard and nonstandard procedures that students use when learning mathematics.
When presenting the seminar work, the student demonstrates that he/she is aware of the potential of the chosen topic, the necessary input knowledge of the pupils and the connections within the topic and with other topics, and has developed the objectives of the lesson properly. Furthermore, he/she demonstrates that he/she is aware of the possibilities of the proposed activities, teaching methods, selected tasks (what are their weaknesses and strengths). Demonstrates that he/she reflects on the response to a pupil's mistake in order to help him/her in his/her learning.

Brief outline of the course:

The content is based on current research findings related to mathematics teacher's specialised knowledge model. We focus mainly on pedagogical content knowledge, specifically knowledge of features of learning mathematics, knowledge of mathematics teaching, and knowledge of mathematics learning standards.
This knowledge is developed in the context of the five essential topics:
- Numbers, variables and numerical operations with numbers
- Relationships, functions, tables, diagrams
- Geometry and measurement
- Combinatorics, probability, statistics
- Logic, reasoning, proofs.

Within these essential topics we deal with the cognitive process of students, different representations of mathematical concepts, students' difficulties and their possible causes, teaching mathematical proofs, developing students' creativity, ways of motivating pupils, and also some didactical theories, such as Van Hiele's theory of geometric thinking. In each topic area we focus on critical points in terms of students' learning and the teaching of mathematics, preferably in secondary school.

Recommended literature:

[1] M.Hejný a kol. Teória vyučovania matematiky. Bratislava: SPN, 1989.
[2] Hejný, M.; Kuřina, F. Dítě, škola a matematika: konstruktivistické přístupy k vyučování. Praha: Portál, 2001.
[3] Hejný, M.; Novotná, J.; Stehlíková, N. Dvacet pět kapitol z didaktiky matematiky. Praha: PedF UK, 2004.
[4] Fischer, R.; Malle, G. Člověk a matematika, Bratislava: SPN, 1992.
[5] Vondrová Naďa a kol. Kritická místa matematiky základní školy v řešení žáků. Praha: Karolinum, 2016.
[6] Textbooks and collections of problems and taks for secondary and middle school.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 145

A	B	C	D	E	FX
54.48	15.17	17.93	6.9	4.83	0.69

Provides: doc. RNDr. Ingrid Semanišinová, PhD.

Date of last modification: 14.04.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ DDP1/22	**Course name:** Diploma Project I

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: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
regular consultations with diploma thesis supervisor about the progress of diploma project development, design of investigation plan

Learning outcomes:
Student has studied the theoretical background, formulates research questions, has designed investigation plan, has presented first results, eventually.

Brief outline of the course:
Development of diploma project

Recommended literature:
Recommended literature that is included in the diploma thesis assignments
Regulations for diploma thesis preparation
template for diploma thesis

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 3

abs	n
66.67	33.33

Provides:

Date of last modification: 15.02.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ DDP2/22	**Course name:** Diploma Project II

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

Number of ECTS credits: 3

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
regular consultaions with diploma thesis supervisor about the progress of diploma project development and about the investigation
regular consultations
study of available resources connected with the diploma thesis assignments
first results

Learning outcomes:
Student understands the methods of investigation and he gains first results.

Brief outline of the course:
Work on the diploma project with regard to the assignemnts of the diploma thesis

Recommended literature:
Recommended literature that is included in the diploma thesis assignments
Regulations for diploma thesis preparation
template for diploma thesis

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 3

abs	n
66.67	33.33

Provides:

Date of last modification: 15.02.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ DDP3/22	**Course name:** Diploma Project III

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

Number of ECTS credits: 3

Recommended semester/trimester of the course: 3.

Course level: II.

Prerequisities:

Conditions for course completion:
regular consultations with diploma thesis supervisor about the progress of diploma project development and about the project results

Learning outcomes:
Student has enough knowledge to prepare a theoretical part of the diploma thesis and for practical part based on the problem analysis and drawing conclusions.

Brief outline of the course:
Work on the project with regard to the diploma thesis assignments

Recommended literature:
Recommended literature that is included in the diploma thesis assignments
Regulations for diploma thesis preparation
template for diploma thesis

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 5

abs	n
100.0	0.0

Provides:

Date of last modification: 15.02.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/DPOU/22	**Course name:** Diploma Thesis and its Defence

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

Number of ECTS credits: 14

Recommended semester/trimester of the course:

Course level: II.

Prerequisities:

Conditions for course completion:
Preparation and submission of diploma thesis in printed and electronic form.
Presentation of diploma thesis results and its defence in front of examination board.

Learning outcomes:
Knowledge and skills connected with selected problem analysis and presentation of diploma thesis results in front of experts.

Brief outline of the course:
Preparation and submission of diploma thesis to central registration system.
Printed version for reviewing.
Presentation of diploma thesis results and answers to the questions of reviewrs.
Discussion on the content of diploma thesis and answers to the questions of examination board members.

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 5

A	B	C	D	E	FX
80.0	20.0	0.0	0.0	0.0	0.0

Provides:

Date of last modification: 15.02.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ DPP2a/22	**Course name:** Diploma project I
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 1	
Recommended semester/trimester of the course: 1.	
Course level: II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 24	

abs	n
100.0	0.0

Provides:
Date of last modification: 24.08.2022
Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ DPP2b/22	**Course name:** Diploma project II
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 1	
Recommended semester/trimester of the course: 2.	
Course level: II.	
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:
Date of last modification: 24.08.2022
Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ DPP2c/22	**Course name:** Diploma project III
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 1	
Recommended semester/trimester of the course: 3.	
Course level: II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 23	
abs	n
100.0	0.0
Provides:	
Date of last modification: 24.08.2022	
Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ DPP2d/22	**Course name:** Diploma project IV
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: 4.	
Course level: II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 18	

abs	n
100.0	0.0

Provides:
Date of last modification: 24.08.2022
Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/PUDU/15	**Course name:** Drug Addiction Prevention in Educational Practice

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: 4

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

Course level: II.

Prerequisities:

Conditions for course completion:
1st part of the semester evaluation: active participation in the training part (30p). 2nd part of the semester evaluation: active participation in workshops (20p) 3rd part of the semester evaluation - preparation (10p) and implementation (10p) of block activities (20p, minimum 11 points). 4th part of the evaluation - written knowledge exam (20p, minimum 11 points). In total, students can get 90p and the final grade is as follows: 90 - 82: A 81 - 73: B 72 - 66: C 65 - 59: D 58 - 54: E 53 and less: FX. Detailed information in the electronic bulletin board of the course in AIS2. The teaching of the subject will be realized by a combined method.

Learning outcomes:
The student understands principals of research data based prevention of risk behavior, can describe and explain the determinants of risk behavior as well as protective and risk factors for substance use. Understands and adequately interprets the theory explaining the background of substance and non-substance addictions.
The student is also able to state and classify the types and forms of prevention, strategies and approaches in prevention, can distinguish effective strategies from ineffective ones.
The student is able to apply the learned rules, procedures and competencies for the work of a teacher in the field of drug use prevention, as well as the acquired professional skills for the work of a teacher and prevention coordinator at school.

Brief outline of the course:
Psychological, pedagogical-psychological, medical and legal-forensic aspects of substance use prevention
Prevention of substance use based on risk and resilience
Primary, secondary and tertiary prevention of substance use
Universal, selective and indicated prevention of substance use
Effective substance prevention strategies based on research data
Preparation and implementation of components of effective substance use prevention programs

Recommended literature:
Orosová, O. a kol. (2012). Základy prevencie užívania drog a problematického používania internetu v školskej praxi. Košice: UPJŠ.

Sloboda, Z., & Bukoski, J. (Eds.). (2006). Handbook of Drug Abuse Prevention: Theory, Science, and Practice. New York: Springer.
National and international scientific journals.

Course language:
slovak

Notes:

Course assessment
Total number of assessed students: 430

A	B	C	D	E	FX
51.16	41.16	6.98	0.7	0.0	0.0

Provides: prof. PhDr. Oľga Orosová, CSc., Mgr. Janka Liptáková, PhDr. Anna Janovská, PhD., Mgr. Zuzana Michalove

Date of last modification: 24.06.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ DGE/22	**Course name:** Dynamic geometry

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: 3

Recommended semester/trimester of the course: 3.

Course level: II.

Prerequisities:

Conditions for course completion:
Master the concept of dynamic geometric systems and commands for creating and modifying dynamic constructions. To be able to use dynamic geometric systems in the study of the properties of geometric shapes and the discovery of geometric patterns. To be able to effectively use the commands of dynamic geometric systems for modeling various situations, solving geometric problems, exploring geometric transformations, exploring graphs of functions, data processing.
Rating:
Test requiring the solution of geometric problems using classical tools and the use of a dynamic geometric system - 16 b.
Elaboration of a project focused on the use of a dynamic geometric system in solving geometric problems on a selected topic - 16 b.
Classification scale:
A: 91 % - 100 %, B: 81 % - 90 %, C: 71 % - 80 %, D: 61 % - 70 %, E: 51 % - 60 %, FX: 0 % - 50 %.

Learning outcomes:
Skills to create dynamic constructions in a dynamic geometric system and to use commands usable in solving geometric problems. Knowledge and skills to effectively use geometric, algebraic and other types of tools in experimenting with geometric objects and their attributes, in discovering invariant properties of geometric shapes and geometric relationships between objects in triangles, quadrilaterals, conic sections and in basic types of spatial bodies. Be able to use geometric transformations in solving more complex constructing tasks.

Brief outline of the course:
1.-4. Constructions and investigation of properties and geometric relations in triangles, quadrilaterals, circles and their use in solving construction problems. Menelaos's theorem, Ceva's theorem, Varignon's theorem, Ptolemy's theorem, cyclic and tangential quadrilaterals, center of gravity of triangles and quadrilaterals.
5. Investigation of sets of points with a given property.
6. Discovering and testing geometric relationships.
7. Composing congruent transformations. Use of congruent and similar transformations and circular inversion for solving tasks.

8. Mathematical modeling, investigation of functional dependencies between quantities, solving problems to find extremes.
9.-10. Constructions of bodies, mutual positions of geometric shapes in space, sections of bodies, intersection of a line with a body.

Recommended literature:

Vaníček, J.: Počítačové kognitivní technologie ve výuce geometrie, Pedagogická fakulta Univerzity Karlovy, 2009
Stahl, G.: Dynamic-Geometry activities with GeoGebra for Virtual Math Teams, The Math Forum at Drexel University, 2012.
De Villiers, M., D.: Rethinking proof with the Geometer's Sketchpad. Key Curriculum Press, 2003.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 81

A	B	C	D	E	FX
50.62	25.93	18.52	4.94	0.0	0.0

Provides: doc. RNDr. Stanislav Lukáč, PhD.

Date of last modification: 19.04.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ DYS2/24	**Course name:** Dynamic systems

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

Number of ECTS credits: 4

Recommended semester/trimester of the course:

Course level: II.

Prerequisities:

Conditions for course completion:
Ongoing evaluation takes the form of a written test during the semester. The overal evaluation is based on a result of mid-term evaluation (60%) and the result of final written and oral examination (40%).

Learning outcomes:
The course provides students deep knowledge of the theory of dynamical systems from the theoretical and practical point of view (their modeling, their properties and numerical simulation). Emphasis is put on an interdisciplinary approach and hte usage of software.

Brief outline of the course:
1. Basic notions of the theory of dynamical systems and their properties.
2. Differential equations of n-th order and systems of differential equations - their relationship, methods of solution.
3. Difference equations and systems - methods of solution.
4. Existence, uniqueness and continuation of Cauchy problem.
5. Applications of dynamical systems.

Recommended literature:
1. Brunovský, P. , Diferenčné a diferenciálne rovnice (vysokoškolský učebný text), FMFI UK, 2011
http://www.iam.fmph.uniba.sk/skripta/brunovsky/ddrtext.pdf
2. L. Kluvánek, I. Mišík, M. Švec: Matematika II, SVTL, Bratislava, 1961.
3. N. M. Matvejev: Zbierka príkladov z obyčajných diferenciálnych rovníc, ALFA, Bratislava,
4. Stuart, A.M.; Humphries, A.R. (1996), Dynamical Systems and Numerical Analysis, Cambridge University Press
5. Jacques M. Bahi and Christophe Guyeux. 2013. Discrete Dynamical Systems and Chaotic Machines: Theory and Applications. CRC Press, Inc., Boca Raton, FL, USA. 1970.
6. Kelley, C. T. (1995). Iterative Methods for Linear and Nonlinear Equations. SIAM.
7. Kelley, C.T. (1999) Iterative Methods for Optimization. In: Frontiers in Applied Mathematics, Vol. 18, SIAM

Course language:

Slovak

Notes:

Course assessment
Total number of assessed students: 24

A	B	C	D	E	FX
33.33	16.67	16.67	25.0	8.33	0.0

Provides: doc. Mgr. Jozef Kiseľák, PhD.

Date of last modification: 27.03.2024

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPPaPZ/VP/09	**Course name:** Educational Counselling

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: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 262

A	B	C	D	E	FX
76.72	14.5	5.73	2.29	0.76	0.0

Provides: PhDr. Anna Janovská, PhD.

Date of last modification: 30.01.2025

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ ZSP/15	**Course name:** Essentials of Special Education

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: 2

Recommended semester/trimester of the course: 3.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 805

A	B	C	D	E	FX
52.42	24.35	12.3	6.58	3.6	0.75

Provides: PaedDr. Michal Novocký, PhD., doc. PaedDr. Renáta Orosová, PhD.

Date of last modification: 14.09.2024

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ ZZP/12	**Course name:** Experiential 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: 4

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

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 451

A	B	C	D	E	FX
41.46	38.58	14.63	4.21	0.89	0.22

Provides: doc. PaedDr. Renáta Orosová, PhD., Mgr. Beáta Sakalová, PhD.

Date of last modification: 14.09.2024

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/PsZ/15	**Course name:** Health Psychology

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., 3.

Course level: II.

Prerequisities:

Conditions for course completion:
Assessment Conditions:
Active participation in seminars (25%) – a maximum of 2 absences is allowed.
Preparation and presentation of a seminar paper on a topic assigned during the seminar, within the agreed timeframe (25%).
Final paper and its ongoing presentation (50%).
Final Grading Scale:
A: 100 – 90%
B: 89 – 80%
C: 79 – 70%
D: 69 – 60%
E: 59 – 50%
FX: 49% or less – failed and the work must be revised.

Learning outcomes:
Knowledge: Students will gain basic knowledge of health psychology, including factors that promote health and those contributing to the development of illnesses. They will learn to formulate the basic theses of health psychology, explain its concepts, and understand the principles of the bio-psycho-social model of health. They will expand their understanding of the applications of health psychology in working with individuals and groups, including in school settings.
Skills: Students will develop the ability to prepare a basic preventive program focused on promoting a healthy lifestyle and managing stress. They will learn to implement acquired knowledge in practice, including working with children and youth in school environments.
Competencies: Graduates will be able to effectively participate in the creation and implementation of preventive programs that support health and mental well-being. They will know how to apply psychological knowledge when working with students in school settings, contributing to the improvement of both mental and physical health of individuals and society.

Brief outline of the course:
1. Health psychology. Definition of health. Bio-psycho-social model of health.
2. Mental health and quality of life, well being.
3. Physiological aspects of mental health, lifestyle

4. Stress. Coping, resilience.
5. Psychosomatic diseases, placebo.
6. Social support and its importance for health.
7. Burnout syndrome.
8. The meaning of life, faith.
9. Health-related behavior and prevention. Risky behavior, excessive use of the Internet and screens.
10. Socio-economic inequalities in health. Unemployment and health.

Recommended literature:

Křivohlavý, J. (2001). Psychologie zdraví. Praha: Portál.
Kebza, V. (2005). Psychosociální determinanty zdraví. Praha: Academia.
Křivohlavý, J. (2002). Psychologie nemoci. Praha: Grada.
Sarafino, E. P. (2007). Health psychology: Biopsychosocial interactions. John Wiley & Sons.
Taylor, E. (2006). Health psychology. Singapore: McGraw-Hill.
Vollrath, M. E. (2006). Handbook of personality and health. Chichester: John Wiley & Sons.
Marks, D. F., Murray, M., Estacio, E. V., & others. (2024). Health psychology: Theory, research and practice (7th ed.). SAGE Publications Ltd
Mareš, J., & Kebza, V. (2024). Psychologie zdraví. Grada.

Course language:

Notes:

Course assessment

Total number of assessed students: 149

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Provides: doc. Mgr. Gabriel Baník, PhD.

Date of last modification: 04.02.2025

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/UPN/17	**Course name:** Introduction into Psychology of Religion

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: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
The assessment is based on the interim evaluation. The subject will be taught in both present and distance format. Up-to-date information concerning the subject for the given academic year can be found on the electronic board of the subject in the Academic Information System (AIS) of the UPJŠ.

Learning outcomes:
The student wil acquire a basic overview of the origin and current state of knowledge in the field of research and application the psychology of religion. He/she will be able to described, explaine, and evaluate this knowlege. The student will be able to apply the acquired knowledge in the basic orientation in the field, and develop critical thinking and will be able to apply and integrate already acquired knowledge from other (psychological) distributions

Brief outline of the course:
1. History of psychology of religion in national and world context
2. Psychological perspective on religion and religious experience
3. Psychology of religion in an interdisciplinary context
4. Basic approaches to psychological interpretation and selected views
5. Different types of religious experience
6. Psychological view of religion from a biodromal perspective
7. Spirituality versus religiosity in a postmodern society
8. Coping in the context of religiosity
9. Psychotherapy and religion, pastoral psychology

Recommended literature:
Eliade, M. (1994). Posvátné a profánní. Praha: Česká křesťanská akademie.
Eliade, M. (1995). Dějiny náboženského myšlení 1. Praha: Oikoymenh.
Freud, S. (1999). Nutkavá jednání a náboženské úkony. In Freud, S., Spisy z let 1906–1909. Praha: Psychoanalytické nakladatelství.
Fromm, E. (2003). Psychoanalýza a náboženství. Praha: Aurora
Erikson, E. (1996). Mladý muž Luther: studie psychoanalytická a historická. Praha: Psychoanalytické nakladatelství.
James, W. (1930). Druhy náboženské zkušenosti. Praha: Melantrich.
Jung, C. G. (1993). Analytická psychologie: Její teorie a praxe. Praha: Academia.

Křivohlavý, J. (2000). Pastorální péče. Praha: Oliva
Pargament, K. (1997), Psychology of religion and coping,
Říčan, P. (2007). Psychologie náboženství a spirituality. Praha: Portál.
Říčan P. (2002), Psychologie náboženství, Portál, Praha,
Stríženec, M. (2001) Súčasná psychológia náboženstva

Course language:

Notes:

Course assessment
Total number of assessed students: 87

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Provides: Mgr. Jozef Benka, PhD.

Date of last modification: 21.02.2025

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPPaPZ/ZMPPV/15	**Course name:** Introduction to Research Methodoly in Education and Psychology

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

Number of ECTS credits: 4

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities: KPE/PDU/15 and KPPaPZ/PPgU/15

Conditions for course completion:
- active participation in seminars, presentation of assignments in groups, final exam

Learning outcomes:
The graduate of the course will gain information about the research methodology, will understand the basic methods of pedagogical and psychological research that can be used in the practice of the teacher. Within the seminars, students will develop professional skills through their own demonstration of a specific research method. The graduate of the course will be able to carry out simple scientific research, present the results of research and read the results of the latest research in the field of pedagogy and psychology.

Brief outline of the course:
Research in pedagogy and psychology. Scientific research, scientific thinking. Parts of a research project. Research planning. Topic selection, research problem formulation. Types of research plans. Hypothesis, variables, operationalization. Ethical issues of scientific research. Experiment (experiment problems, control of variables in the experiment). Experimental plans, quasi-experiment. Reliability and validity of research. Research sample, methods of sample selection. Data collection techniques - questionnaire, interview, sociometry, semantic differential, observation, tests. Introduction to qualitative methodology. Possibilities of quantitative data processing. How to write a scientific article, presentation, poster, qualification work. Interpretation of findings, integration of findings into context.

Recommended literature:
Bačíková, M., Janovská, A., Orosová, O. Základy metodológie pedagogicko-psychologického výskumu. 2.doplnené vydanie. Šafárik Press, 2019. dostupné online: https://unibook.upjs.sk/img/cms/2019/FF/zaklady-metodologie-ped-psych-vyskumu-2-vyd-web.pdf
Gavora, P.: Úvod do pedagogického výskumu. Bratislava, UK 1999.
Švec, Š. a kol.: Metodológia vied o výchove. Bratislava, Iris 1998. Turek, I.: K základom pedagogického výskumu. Prešov, KPÚ 1991.
Ferjenčík, J.: Úvod do metodológie psychologického výskumu. Praha, Portál 2000.
http://www.e-metodologia.fedu.uniba.sk/

Course language:

Notes:

Course assessment
Total number of assessed students: 825

A	B	C	D	E	FX
19.27	28.48	24.61	19.03	8.48	0.12

Provides: doc. Mgr. Mária Bačíková, PhD., PhDr. Anna Janovská, PhD.

Date of last modification: 24.06.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ LTM2/22	**Course name:** Logic and set theory

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

Number of ECTS credits: 4

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
Exam

Learning outcomes:
To obtain a basic knowledge on the mathematical notion of an infinity. Analysis of the notion of a proof.

Brief outline of the course:
Set as a mathematical formularization of an infinity. Properties of the set of reals. Relations and mappings.
Finite and countable sets. Cardinality of continuum. Elementary cardinal arithmetics.
Sentential calculus, an axiomatization. Completness Theorem. Methods of proofs. Language of predicate calculus, examples. Axiomatizations of predicate calculus and the notion of a proof. Methods of proofs in predicate calculus.

Recommended literature:
E. Mendelson, Introduction to Mathematical Logic, van Nostrand 1964.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 307

A	B	C	D	E	FX
14.33	18.89	19.54	16.94	28.66	1.63

Provides: RNDr. Jaroslav Šupina, PhD.

Date of last modification: 18.02.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/DPU/22	**Course name:** Magister thesis and its defense

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

Number of ECTS credits: 14

Recommended semester/trimester of the course:

Course level: II.

Prerequisities:

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

Learning outcomes:
The diploma thesis demonstrates mastery of extended theory and professional terminology of the field of study, acquisition of knowledge, skills and competencies in accordance with the declared profile of the graduate of the study program, as well as the ability to apply them creatively in solving selected field problems. Student demonstrates the ability of independent professional work in terms of content, formal and ethical. Further details on the diploma thesis are determined by Directive no. 1/2011 on the basic requirements of final theses and the Study Regulations of UPJŠ in Košice.

Brief outline of the course:
1. Elaboration of the diploma thesis in accordance with the instructions of the supervisor.
2. Presentation of the results of the diploma thesis before the examination commission.
3. Answering questions related to the topic of the diploma thesis within the discussion.

Recommended literature:
The recommended literature is determined individually in accordance with the topic of the diploma thesis.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 14

A	B	C	D	E	FX
85.71	0.0	0.0	14.29	0.0	0.0

Provides:
Date of last modification: 19.04.2022
Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ MZF/22	**Course name:** Mathematical foundations of financial literacy

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: II.

Prerequisities:

Conditions for course completion:
Improving knowledge and skills from the use of standard methods in solving mathematical problems in the topics: sequences, infinite series, financial mathematics. Developing the ability to analyze and explain various problem-solving strategies.
Conditions for continuous evaluation:
1. Participation in teaching in accordance with the study rules and instructions of the teacher.
2. Active participation in the exercises.
3. Elaboration of two tests.
Conditions for successful completion of the course:
A grade of A requires at least 90%, a grade of B requires at least 80%, a grade of C requires at least 70%, a grade of D requires at least 60%, and a grade of E requires at least 50%.

Learning outcomes:
The student is able to explain the basic concepts and methods of solving mathematical problems selected from various areas of school mathematics. The student is able to apply the acquired knowledge in finding and using various strategies for solving problems. The student will get acquainted with typical and more demanding tasks from school mathematics and with specific knowledge gaps and misconceptions that occur in their solution in the teaching of mathematics in primary and secondary school. The student will learn to use different models in solving problems in financial mathematics, which will support the development of his/her financial literacy.
The student is able to assess whether the student's non-standard solution is correct or not, and can explain his decision.

Brief outline of the course:
Sequences, sequence properties, limit of a sequence, convergence and divergence of sequences.
Arithmetic and geometric sequence and their use in solving problems.
Infinite series, convergence of infinite series, infinite geometric series.
Basic concepts, methods, models in financial mathematics: currency, exchange rate, insurance, taxes, interest, simple and compound interest, regular deposits and withdrawals, loan repayment, mortgages.

Recommended literature:
1. Kohanová, I., Slavičková, M.: Finančná matematika pre budúcich učiteľov matematiky.

Knižničné a edičné centrum FMFI UK, 2013.
2. Larson, L.C., Metódy riešenia matematických problémov, Bratislava, Alfa, 1990.
3. Lengyelfalusy, T., Kochol, M., Zábojníková, N.: Metódy riešenia matematických úloh 2. Žilinská univerzita v Žiline, 2009.
4. Učebnice a zbierky úloh z matematiky.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 158

A	B	C	D	E	FX
34.81	20.25	22.15	13.29	8.23	1.27

Provides: doc. RNDr. Stanislav Lukáč, PhD.

Date of last modification: 19.04.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ MRUc/22	**Course name:** Mathematical problem solving strategies III

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: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
Assessment is given on the basis of the results of written examinations carried out during the semester and active participation in exercises.
Classification scale:
A: 91%-100%, B: 81%-90%, C: 71%-80%, D: 61%-70%, E: 51%-60%, FX: 0%-50%.

Learning outcomes:
Students become familiar with the tasks, methods of problem solving, solving strategies and with specific problems of teaching mathematics at primary and secondary schools. The student will
1. familiarise themselves with mathematical culture, ways of thinking, self-expression and putting forward arguments,
2. gain a deeper understanding of the base terminology of real analysis, their properties and interconnections,
3. be able to define and interpret key terms, prove their basic properties and relationships,
4. know how to solve tasks focused on utilising the aforementioned concepts and interpret the obtained results.

Brief outline of the course:
Basic knowledge of school mathematics, Euclid's algorithm, Diophantine equations, Number systems, Divisibility rules, Congruence classes of integers, Algebraic numbers, Motion problems, Working together word problems, Mixture Word Problems, Optimization word problems.

Recommended literature:
Hecht, T., Sklenáriková, Z., Metódy riešenia matematických úloh, Bratislava, SPN, 1992.
Hecht, T. a kol., Matematika pre 1.-4. ročník gymnázií a SOŠ, OrbisPictusIstropolitana, Bratislava 1999-2002.
Krantz, S.G., Techniques of Problem Solving, AMS, 1997.
Larson, L.C., Metódy riešenia matematických problémov, Bratislava, Alfa, 1990.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 164

A	B	C	D	E	FX
45.12	28.66	10.37	7.32	8.54	0.0

Provides: prof. RNDr. Jozef Doboš, CSc.

Date of last modification: 25.04.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ MST2/24	**Course name:** Mathematical statistics

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

Number of ECTS credits: 4

Recommended semester/trimester of the course:

Course level: II.

Prerequisities:

Conditions for course completion:
Total evaluation based on two written tests during the semester (2x40p) and the result of the written (30p) and oral part of the exam (30p).
At least 50% must be obtained from each part.
Final evaluation: ≥90% A; ≥80% B; ≥70% C; ≥60% D; ≥50% E; <50% FX.

Learning outcomes:
Student should obtain the knowledge about basic statistical methods and the ability to apply theoretical knowledge in practical problems solving.

Brief outline of the course:
1. Random vectors (definition, distributions, characteristics, joint and marginal distributions).
2. Covariance, correlation and regression.
3. Random sample, sampling distributions and characteristics.
4. Some important statistics and their distributions.
5. Point estimators and their properties.
6. Maximum likelihood method.
7. Interval estimates, confidence interval construction (2 weeks).
8. Testing of statistical hypothesis (critical region, level of significance and power of test, methods for searching optimal critical regions).
9. Some important parametric tests (2 weeks).
10. Some important nonparametric tests (2 weeks).

Recommended literature:
1. Skřivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2006
2. Skřivánková V.-Hančová M.: Štatistika v príkladoch, UPJŠ, Košice, 2005
3. Casella, G., Berger, R., Statistical Inference, 2nd ed., Chapman and Hall/CRC, 2024
4. DeGroot, M. H., Schervish, M. J.: Probability and Statistics, 4th ed., Pearson, Boston, 2012
5. Anděl J.: Základy matematické statistiky, MatfyzPress, Praha, 2011(in Czech)

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 88

A	B	C	D	E	FX
31.82	19.32	18.18	13.64	9.09	7.95

Provides: doc. RNDr. Martina Hančová, PhD.

Date of last modification: 21.11.2024

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ MDM/24	**Course name:** Mathematics and didactics of mathematics

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: II.

Prerequisities: ÚMV/DDMc/22

Conditions for course completion:
Appropriate knowledge and competencies from the profile courses of specialisation Teaching mathematics, demonstrating the ability to synthesise the acquired knowledge and procedures and apply them to problems concerning mathematics teaching and learning.

Learning outcomes:
Verification of acquired student competencies in accordance with the graduate profile.

Brief outline of the course:
1. Number sets
2. Sets and statements
3. Number theory
4. Powers, polynomials, fractional expressions
5. Equations and inequalities
6. Planimetry
7. Stereometry
8. Analytical geometry
9. Elementary functions, basic properties
10. Goniometry
11. Sequences and series
12. Combinatorics
13. Probability and statistics

Within each topic, the student has to demonstrate:
• An overview of and understanding of the key mathematical ideas that underpin secondary school mathematics.
• An understanding of the important principles that must be considered when teaching a given topic.
• The ability to apply knowledge in school mathematics, for example, to know what types of problems the pupil is expected to solve, what are the objectives of teaching, how the ideas about basic concepts from the topic are created, and so on.

Recommended literature:
Information sources recommended within individual profile courses.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 0

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0

Provides:

Date of last modification: 18.03.2024

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ MDT/19	**Course name:** Modern Didactical Technology

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: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
Summary evaluation based on ongoing assessment:
1. Active participation at the seminars (in the contact or online form) with minimum 80% participation.
2. Practical ongoing assignments (10) and their defense. At least 50% must be obtained from each assignment elaborated according to assessment criteria.

Learning outcomes:
Student graduated from subject will be able:
- recognize current available digital tools and their parameters for educational activities,
- to use all types of actual digital tools in education of science or humanities,
- to design and realize educational activities by using the modern technologies.

Brief outline of the course:
00. Introduction - goals and didactic principles
01. Modern hybrid classroom in 21st century
02. Digital learning spaces in 21st century
03. Cloud repositories, services, modern web-browser
04. Cloud editors for notes, texts, spreadsheets and presentations
05. Digital text (scan, OCR, voice recognition, Kami pdf)
06. Digital image and audio (digital recording and editing)
07. Interactive E-voting and videoconference systems in education
08. Digital collaborative technologies (social e-reader, collaborative whiteboard)
09. Virtual and digitally based experiments, digital databases
10. Education video (digital recording and editing)
11. Smartphone and tablet in classic and blended education
12. Teaching tools and digital teacher's workspace

Recommended literature:
1. Kireš, M. et al.: Modern didactical technics in teacher practice (in Slovak), Košice: Elfa, 2010
2 . Redecker, C., & Punie, Y. (2017). European Framework for the Digital Competence of Educators: DigCompEdu. Luxembourg: Publications Office of the European Union.

3. C. R. Tucker, T. Wycoff, J. T. Green, Blended Learning in Action: A Practical Guide Toward Sustainable Change. Thousand Oaks: Corwin Press, 2016.
4. D. Bannister, Guidelines on Exploring and Adapting: LEARNING SPACES IN SCHOOLS. Brussels: European Schoolnet, 2017.
5. current information from web sites related to didactical technologies,
catalogues of teaching tools,
current articles about modern trends in science and humanities education.

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 121

A	B	C	D	E	FX
56.2	27.27	12.4	2.48	1.65	0.0

Provides: doc. RNDr. Jozef Hanč, PhD.

Date of last modification: 07.07.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ MFDF/15	**Course name:** Modern Physics from Didactics Point of View

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: 3

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

Course level: II.

Prerequisities:

Conditions for course completion:
Summary evaluation based on ongoing assessment:
1. Practical ongoing assignments (at least 50% needed)
3. Active participation during face-to-face contact learning in classical or virtual classroom (3 absences allowed) and during online learning (no absence, uploading all ongoing assignments)

Learning outcomes:
Student should
1. Achieve better conceptual understanding and an integrated view on fundamental ideas of contemprorary modern physics, which every future physicist and physics teacher should have. (Emphasis is not on abstract mathematical methods, but on using most recent knowledge and tools of Physics Education Research - computer modeling of physical phenomena and employing only elementary algebra and calculus.)
2. Get physical intuition and experience dealing with practical applications of modern physics.

Brief outline of the course:
01.-05. Fundamental ideas of modern mechanics: scales, symmetry, event, worldlline, spacetime diagram, principle of least action, conservation laws; practical applications.
06.-09. Fundamental ideas of relativity: principle of relativity, space-time interval, conservation of momenergy, metrics, principle of maximal aging; practical applications.
10.-13. Fundamental ideas of quantum mechanics: probability amplitude, principle of democracy of histories, rules for amplitudes, propagator, Schrödinger's equation, stationary state, Feynman's diagrams; practical applications.

Recommended literature:
1. Moore, T. A, Six Ideas That Shaped Physics - Unit C, Unit Q, Unit R, 3trd ed., Mc Graw Hill, Boston, 2017
2. Feynman, R.P., QED - The Strange theory of Light and Matter, Princeton University Press, Princeton, 1985
3. Hey, A., Walters, P., New Quantum Universe, Cambridge University Press, 2003
4. Taylor, E. F, Wheeler, J. A., Space-time Physics-Introduction to Special Relativity, 2nd ed., W.H. Freeman and Company, New York, 1992

5. Taylor, Wheeler, Bertschinger, Exploring Black Holes - Introduction to General relativity, 2nd ed., 2018, https://archive.org/details/exploringblackholes
6. Thorne, K. S., Black Holes and Time Warps, W.W. Norton, New York, 1995
7. Relevant resources from recent journal literature (American Journal of Physics, European Journal of Physics, Scientific American...)

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 5

A	B	C	D	E	FX
40.0	40.0	20.0	0.0	0.0	0.0

Provides: doc. RNDr. Jozef Hanč, PhD.

Date of last modification: 27.01.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ PDK/17	**Course name:** Pedagogical Communication

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: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 217

A	B	C	D	E	FX
77.42	20.28	2.3	0.0	0.0	0.0

Provides: Mgr. Beáta Sakalová, PhD., Mgr. Katarína Petríková, PhD.

Date of last modification: 14.09.2024

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ PDD/17	**Course name:** Pedagogical Diagnostics

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: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 113

A	B	C	D	E	FX
85.84	10.62	3.54	0.0	0.0	0.0

Provides: PaedDr. Michal Novocký, PhD., Mgr. Beáta Sakalová, PhD.

Date of last modification: 12.03.2024

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ PD/22	**Course name:** Pedagogy

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: II.

Prerequisities: KPE/PDU/15

Conditions for course completion:
Obtaining the required number of credits in the prescribed composition by the study plan.

Learning outcomes:
The student is able to demonstrate the acquired competencies in accordance with the profile of the graduate.

Brief outline of the course:
1. Pedagogy, basic pedagogical categories, system of pedagogical scientific disciplines.
2. Education, pages and functions of education, educational process, self-education.
3. Factors of education, educated individual, pedagogue, pedagogical profession, professional competencies.
4. School education, family education.
5. Educational goals, taxonomy, requirements, classification of educational goals.
6. Methods of education.
7. Pedagogical principles.
8. School system of the Slovak Republic.
9. Didactics, basic questions of didactics, current starting points of didactics.
10. Objectives of the teaching process, the teacher's work with the objectives of teaching.
11. Content of education, basic curriculum, extension curriculum, elements and components of curriculum.
12. Assessment in school education, types, functions and criteria of assessment.
13. Pedagogical control, methods and forms of pedagogical control.
14. Teacher's work planning, written preparation of the teacher for teaching.
15. Teaching process, stages of the teaching process and their didactic functions.
16. Organizational forms of teaching, lesson, stages, types of lessons.
17. Teaching methods, classification, functions, selection of teaching methods.
18. Didactic principles of the teaching process.
19. Basic pedagogical documents, textbook, functions and structural components of the textbook.
20. Current concepts of the teaching process.

Recommended literature:
Čapek, R.: Moderní didaktika. Praha: Grada, 2016.

Dytrtová, R., Krhutová, M. Učitel. Příprava na profesi. Praha: Grada, 2009.
Kalhous, Z. – Obst, O. 2002. Školní didaktika. Praha: Portál, 2002.
Petlák, E.: Kapitoly zo súčasnej didaktiky. Bratislava: IRIS, 2005.
Prucha, J.: Moderní pedagogika. Praha: Portál, 2012.
Turek, I.: Didaktika. Bratislava: Wolters Kluwer, 2014.
Vališová, A., Kasíková, H.: Pedagogika pro učitele. Praha: Grada, 2010.
Zormanová, L.: Obecná didaktika. Praha: Grada, 2014.

Course language:

Notes:

Course assessment
Total number of assessed students: 25

A	B	C	D	E	FX
24.0	44.0	16.0	12.0	4.0	0.0

Provides:

Date of last modification: 12.03.2024

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPE/ PPD/22	**Course name:** Pedagogy and Psychology
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: II.	
Prerequisities: KPE/PDU/15 and KPPaPZ/PPgU/15	
Conditions for course completion: Obtaining the required number of credits in the prescribed composition by the study plan.	
Learning outcomes: The student is able to demonstrate the acquired competencies in accordance with the profile of the graduate.	
Brief outline of the course: Pedagogy: 1. Pedagogy, basic pedagogical categories, system of pedagogical scientific disciplines. 2. Education, pages and functions of education, educational process, self-education.3. Factors of education, educated individual, pedagogue, pedagogical profession, professional competencies.4. School education, family education. 5. Educational goals, taxonomy, requirements, classification of educational goals.6. Methods of education. 7. Pedagogical principles. 8. School system of the Slovak Republic. 9. Didactics, basic questions of didactics, current starting points of didactics. 10. Objectives of the teaching process, the teacher's work with the objectives of teaching.11. Content of education, basic curriculum, extension curriculum, elements and components of curriculum. 12. Assessment in school education, types, functions and criteria of assessment.13. Pedagogical control, methods and forms of pedagogical control.14. Teacher's work planning, written preparation of the teacher for teaching.15. Teaching process, stages of the teaching process and their didactic functions.16. Organizational forms of teaching, lesson, stages, types of lessons.17. Teaching methods, classification, functions, selection of teaching methods. 18. Didactic principles of the teaching process. 19. Basic pedagogical documents, textbook, functions and structural components of the textbook.20. Current concepts of the teaching process. Psychology: 1.Psychology as a science, goals and subject of psychology in terms of influential psychological directions.2.Pedagogical psychology in teacher training, its subject, function.3.Psychology in school practice: professional forms of control and assistance, psychological examination, counseling process. Crisis intervention. Code of ethics.4.Psychology in school practice: approaches and models of prevention, prevention spectrum, protective and risk factors of risk behavior of schoolchildren in the context of the theory of triadic influence.5.Psychology in school practice: effective strategies for prevention of substance use.6.Psychology of education from from the point of view of psychodynamic approach (Psychoanalysis and Individual Psychology) .7.Psychology of education from the point of	

view of humanistic psychology.8.Psychology of education from the point of view of cognitive psychology.9.Psychology of learning and types of learning supplemented by examples from school practice. / success in the context of individual theories of cognitive development.11. Nutritional peculiarities, school non-success / intelligence in terms of intelligence.12. Memory and developmental peculiarities, school non-success 13. Attention and developmental peculiarities, school non / success peculiarities of individual types of family, educational styles.15.Social relations at school, me modes of cognition of interaction U and Ž. Psychosocial climate of school class and school, methods of cognition, sociometry.16.Social influence: presence of others, interpersonal influences and meaningful understanding of social influence in teacher's work.17.Teacher as a professional, his professional ability, teaching style, attitudes towards students, expectations towards students, coping with stress, burnout syndrome.18.Students: gifted and talented, school failure, non-thriving pupils and failing pupils, pupils' self-efficacy.19. Types of research plans and their creation (setting goals, hypotheses, variables, selection of research sample) in the context of pedagogical-psychological research.20. Selected methods of pedagogical-psychological research - questionnaire, interview, observation and possibilities of their use in school practice.

Recommended literature:

Pedagogika:
Čapek, R.: Moderní didaktika. Praha: Grada, 2016.
Dytrtová, R., Krhutová, M. Učitel. Příprava na profesi. Praha: Grada, 2009.
Kalhous, Z. – Obst, O. 2002. Školní didaktika. Praha: Portál, 2002.
Petlák, E.: Kapitoly zo súčasnej didaktiky. Bratislava: IRIS, 2005.
Prucha, J.: Moderní pedagogika. Praha: Portál, 2012.
Turek, I.: Didaktika. Bratislava: Wolters Kluwer, 2014.
Vališová, A., Kasíková, H.: Pedagogika pro učitele. Praha: Grada, 2010.
Zormanová, L.: Obecná didaktika. Praha: Grada, 2014.
Psychológia:
Mareš, J.: Pedagogická psychologie. Praha : Grada 2013.
Mareš, J., & ČÁP, J.: Psychologie pro učitele. Praha: Portál, 2001.
Džuka, J.: Základy pedagogickej psychológie. Prešov: UK 2003.
Orosová, O. a kol: Psychológia a pedagogická psychológia 1. Košice: UPJŠ, 2005.
Orosová, O. a kol.: Základy prevencie užívania drog a problematického používania internetu v školskej praxi. Košice: UPJŠ 2012.
Bačíková, M., Janovská, A. (2019) . Základy metodológie pedagogicko-psychologického výskumu. Sprievodca pre študentov učiteľstva. 2. rozšírené vydanie. Šafárik press, Košice.
Gavora, P. a kol. (2010). Elektronická učebnica pedagogického výskumu. Bratislava: Univerzita Komenského, 2010. dostupné online na www. e-metodologia. fedu. uniba. sk.
Vágnerová, M.: Základy psychológie. Praha : Karolinum 2005.
Vágnerová, M.: Vývojová psychológie. Praha : Karolinum 2005.
Vágnerová, M.: Škoní podadenská psychologie pro pedagogy. Praha : Karolinum 2005. Výrost, J., Slaměník, I.: Sociální psychologie. Praha : Grada 2008.
Výrost, J., Salměník, I.: Aplikovaná sociální psychológie I. Praha: Portál 1998.
Strana: 2
Fontana, D. : Psychologie ve školní praxi. Praha: Portál 1997.
Zelina, M.: Stratégie a metódy rozvoja osobnosti. Bratislava, Iris: 1996.
Křivohlavý, J.: Pozitívni psychologie. Praha: Portál 2004.
Křivohlavý, J.: Psychologie zdraví. Praha: Portál 2003.

Course language:

Notes:

Course assessment
Total number of assessed students: 157

A	B	C	D	E	FX
31.85	33.76	24.2	8.92	0.64	0.64

Provides:

Date of last modification: 12.03.2024

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ FYU/22	**Course name:** Physical Problems

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: 3

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
On- line set of problems for self solving is avialable for students. One task is define for each seminar for testing of student preparation. Production and presentation of three own problems is necessary.
problem solving 40 p
obtained problem 10 p
own problems 10 p
oral examination 40 p
Final:
A 100-90 B 89-80 C 79-70 D 69-60 E 59-50 F 49-0

Learning outcomes:
Students will be ready for using of problem solving strategies at lower and upper secondary school levels. Clasical problems are studied in more details from different pont of view (students knowledge anmd skills, technologies, motivation, computer modelling and measuremets).

Brief outline of the course:
Methods of problem solving are presented and trained. The sets of typical problems are analysed. Uding of modelling and real experiments is discussed.

Recommended literature:
1.Baláž, P. : Zbierka úloh z fyziky, SPN Bratislava, 1971
2.Bartuška,K: Postup při řešení fyzikálních úloh, Sbírka řešených úloh z fyziky pro střední školy I, Praha, Prometheus, 1997, s. 5-10.
3.Halpern, A.: 3000 solved problems in Physics, McGraw-Hill, Inc., USA, 1988
4.Janovič,J., Koubek,V. Pecen,I.: Vybrané kapitoly z didaktiky fyziky. Bratislava, UK, 1999,
5.Jurčová, M., Dohňanská, J., Pišút, J., Velmovská, K.: Didaktika fyziky – rozvíjanie tvorivosti žiakov a študentov. Bratislava, UK, 2001,
6.Kružík, M.: Sbírka úloh z fyziky pro žáky strědních škol, SPN, Praha, 1984
7.Lindner, H.: Riešené úlohy z fyziky, Alfa, Bratislava, 1973
8.Linhart, J. (1976): In: Volf, I.: Metodika řešení úloh ve výuce fyziky na základní škole. Hradec Králové, MAFY, 1998,
9.Pietrasiński, Z. (1964): In: Volf, I.: Metodika řešení úloh ve výuce fyziky na základní škole. Hradec Králové, MAFY, 1998,

10.Scholtz, E., Kireš, M.: Fyzika – kinematika pre gymnázia s osemročným štúdiom. Bratislava, SPN, 2001,
11.Šedivý,P., Volf, I.: Dopravní kinematika a grafy. Hradec Králové, MAFY, 1998.
12.Volf,I. (1975): In: Bednařík, M., Lepil, O.: Netradiční typy fyzikálních úloh. Praha, PROMETHEUS,1995,
13.Volf,I.: Jak řešit úlohy fyzikální olympiády, XXIII. Ročník soutěze fyzikální olympiády ve školním roce 1981/82, Praha, SPN, 1981,
14.Volf,I.: Metodika řešení úloh ve výuce fyziky na základní škole. Hradec Králové, MAFY, 1998.
15.Halpern, A.: 3000 solved problems in Physics, McGraw-Hill, Inc., USA, 1988

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 13

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Provides: doc. RNDr. Marián Kireš, PhD.

Date of last modification: 15.02.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ MSSU/22	**Course name:** Physics and Didactics of Physics

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: II.

Prerequisities: ÚFV/DF1/22 and ÚFV/FKS/22 and ÚFV/DF2/22 and ÚFV/ASFU/22

Conditions for course completion:
The graduate has knowledge of physics in wider context. He is able to implement and apply knowledge of physics into education. He is able to apply knowledge of theory of education to selected physical content.

Learning outcomes:
Competencies in accordance with the graduate profile.

Brief outline of the course:
The graduate has knowledge of physics in wider context. He is able to implement and apply knowledge of physics content into education. He is able to apply knowledge of theory of education to selected physical content.
Physics:
Selected problems of Solid state physics, Subnuclear physics and Astrophysics.
Didactics of physics:
State educational curriculum ISCED 2,3-Physics. Development of scientific literacy. Physical experiment. Active learning, inquiry-based education in physics. Formative and summative assessment. Talented students and informal education. Analysis of lower and upper secondary teaching units.

Recommended literature:

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 11

A	B	C	D	E	FX
45.45	27.27	9.09	9.09	9.09	0.0

Provides:

Date of last modification: 15.02.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPPaPZ/PASZ/17	**Course name:** Problem and Aggressive Behaviour of Pupils. Etiology, Prevention and Intervention.

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: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:
General principles of mental development as a basis for recognizing mental disorders in children and adolescents. Etiology of mental disorders and developmental disorders in children and adolescents. Definition of aggressive behavior. Concepts of aggression vs. aggressiveness. Theoretical approaches to aggression. Causes and factors of aggressive behavior. Violence at school and in the family. Bullying. Psychology of problem students. Problems resulting from disturbed behavior. Problems arising from group relationships. Adolescent lifestyle issues. Problems resulting from impaired emotional experience. Solving problematic and aggressive behavior in the school environment. School classroom management, group preventive and intervention work with the classroom. Crisis intervention. Work with parents of problem students. Principles of interviewing a parent. Cooperation with other experts. Prevention of aggressive and problematic behavior at school. Classroom and school climate, school prevention programs.
Viac o tomto zdrojovom texteNa získanie ďalších informácií o preklade sa vyžaduje zdrojový text
Odoslať spätnú väzbu
Bočné panely

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 125

A	B	C	D	E	FX
80.0	14.4	5.6	0.0	0.0	0.0

Provides: PhDr. Anna Janovská, PhD.

Date of last modification: 30.01.2025

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/KPE/EPU/15	**Course name:** Professional Ethics for Teachers and School Counsellors

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: 2., 4.

Course level: II.

Prerequisities:

Conditions for course completion:
1. Active participation in seminars (max. 1 absence) - 30p, 2. Preparation for the seminar - 40p, 3. Preparation (description and analysis) of the moral dilemma - 30p. By summing the points obtained during the semester, the student obtains the final evaluation according to the scale: A 87 - 100, B 77 - 86, C 69 - 76, D 61 - 68, E 56 - 60, FX 55 and less. Detailed information in the electronic board of the course in AIS2. The teaching of the subject will be realized by a combined method.

Learning outcomes:
Knowledge: Students will acquire basic knowledge of the principles of teacher ethics and the ethics of school counselors, understanding the theoretical foundations of moral issues and ethical codes related to these professions.
Skills: They will learn to analyze and solve moral problems in pedagogical practice, discuss ethical issues, and critically evaluate situations with a moral context.
Competencies: They will be able to apply ethical principles in practice, resolve moral dilemmas, and promote a value-oriented school culture.

Brief outline of the course:
Moral emotions (theories of emotion, the center of emotions in the brain, types of emotions and their manifestations)
Development of moral reasoning, cognitive approaches to moral reasoning and their comparison (Piaget, Kohlberg, Gilligan, Eisenberg, Selman, Lind),
Moral behavior (from the point of view of learning theories) and moral (vs. social and emotional) intelligence in the work of a teacher
Possibilities of examining moral behavior and judgment (socio-psychological research of conformity, obedience, aggression and psychodiagnostic approaches to the determination of moral judgment)
Morality and professional ethics in general (ethical principles in helping professions) and codes of ethics
Professional ethics of the teacher and educational counselor (terminology, concepts, main principles of teacher ethics) and teacher ethics codes
Moral dilemmas and ways of solving them, MD of teaching practice

Possibilities of influencing and stimulating moral judgment, use of moral dilemma in education
Cheating and other unethical manifestations in the school environment, ethics and etiquette of final exams

Recommended literature:

Ráczová, B., & Babinčák, P. (2009). Základy psychológie morálky. Košice: Equilibria. ISBN 978-80-7097-786-6.
Gluchmanová, M. (2007). K niektorým terminologickým otázkam učiteľskej etiky. Pedagogická orientace, 17(2), 11–25. ISSN 1211-4669.
Malankievičová, S. (2008). Profesijná etika. Prešov: FF PU.
Miezgová, J., & Vargová, D. (2007). Etika. Bratislava: SPN Mladé letá.
Remišová, A. (2008). Dejiny etického myslenia v Európe a USA. Bratislava: Kalligram.
Zelina, M. (2010). Teória výchovy alebo hľadanie dobra. Bratislava: SPN.
Gluchmanová, M. (2009). Uplatnenie princípov a hodnôt etiky sociálnych dôsledkov v učiteľskej etike. Prešov: FF PU. ISBN 978-80-555-0042-3.
Campbell, E. (2003). The ethical teacher. Berkshire, England: Open University Press. ISBN 0-335-21219-0.
Miller, C. B. (2021). Moral psychology (Elements in Ethics). Cambridge University Press.
Tiberius, V. (2023). Moral psychology: A contemporary introduction (2nd ed.). Routledge.

Course language:
slovak

Notes:

Course assessment
Total number of assessed students: 567

A	B	C	D	E	FX
97.35	2.29	0.35	0.0	0.0	0.0

Provides: doc. Mgr. Gabriel Baník, PhD.

Date of last modification: 04.02.2025

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/PPgU/15	**Course name:** Psychology and Educational Psychology

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

Number of ECTS credits: 5

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
Assessment: A maximum of 40 points can be earned during the semester (through two assignments and a written verification). Exam entry criteria: Active participation in exercises and a minimum of 30 points earned during the semester. Continuous assessment (40%) and written examination (60%). For more information and updates, refer to the electronic board of the course AIS2. Final evaluation: A 87 – 100 B 77 – 86 C 69 – 76 D 61 – 68 E 56 – 60 FX 55 and less Combined method. The information will be yearly specified on the electronic noticeboard of the course in AIS2, aleternatively in LMS UPJŠ or MS Teams environment.

Learning outcomes:
Students will be able to show understanding of the human behaviour in educational situations.
Students will be able to describe, explain and justify possible teachers‘ decisions by using psychological concepts, principles and theories.
Students will be able to apply the psychological findings in the field of education.
Students will be able to explain how adolescents learn and retain new information, to explain their behaviour in response to educational environment.
Students will be able to explain the desired data-based modification of adolescents‘ behaviour to bring an all-round development of his personality and school performance, to explain the desired data-based modification of the behaviour of adolescents with educational problems, with disadvantages.

Brief outline of the course:
Introduction: The content of the course is based on current knowledge of psychological disciplines, especially pedagogical and school psychology.
Teaching is realized by a combination of lectures with engaging narrative interpretation and seminars using interactive, experiential methods, discussion and open communication with mutual respect, support of independence, activity and motivation of students.
Syllabus: Goals and Subject of Psychology and Educational Psychology, the field and its transformations (Educational psychology and its changes over time, its mission, and possible personality transformations). School psychology, school psychologist. Professional forms of support in school practice. Psychological assessment. Counseling process. Crisis intervention. Effective strategies and programs for the prevention of risky behavior among schoolchildren.

Risk/protective factors of risky behavior. Implementation of psychological concepts of personality into school practice. Psychological and educational-psychological characteristics of learning (psychology of learning, types of learning, learning styles). Developmental characteristics and school (un)success (Cognitive, social, emotional, and personality development in childhood and adolescence, Psychological characteristics of adolescence and adulthood. Intelligence, memory, attention, and developmental characteristics of schoolchildren, and school (un)success). Social psychology of the school (teacher-student relationships, methods of understanding teacher-student interaction, the psychosocial climate of the school) and family (factors of family functionality, functional/problematic/dysfunctional/non-functional family, parenting styles). Main actors: Teacher (the teacher as a professional, their professional competence, teaching style, attitudes toward students, expectations of students, coping with stress, burnout syndrome), students (gifted and talented, school failure, successful/unsuccessful students, and failing students, student self-efficacy), school class (as a small social group, internal and external differentiation, bullying, and prevention), psychosocial climate of the school class.

Recommended literature:

Compulsory:

Lectures (Literary sources in published lectures)

Mareš, J.: Pedagogická psychologie. Praha : Grada 2013.

Recommended:

Mareš, J., & ČÁP, J.: Psychologie pro učitele. Praha: Portál, 2001.
Džuka, J.: Základy pedagogickej psychológie. Prešov: UK 2003.
Orosová, O. a kol: Psychológia a pedagogická psychológia 1. Košice: UPJŠ, 2005.
Orosová, O. a kol.: Základy prevencie užívania drog a problematického používania internetu v školskej praxi. Košice: UPJŠ 2012.
Vágnerová, M.: Základy psychológie. Praha : Karolinum 2005.
Vágnerová, M.: Vývojová psychológie. Praha : Karolinum 2005.
Vágnerová, M.: Škoní podadenská psychologie pro pedagogy. Praha : Karolinum 2005. Výrost, J., Slaměník, I.: Sociální psychologie. Praha : Grada 2008.
Výrost, J., Salměník, I.: Aplikovaná sociální psychológie I. Praha: Portál 1998.
Fontana, D. : Psychologie ve školní praxi. Praha: Portál 1997.
Zelina, M.: Stratégie a metódy rozvoja osobnosti. Bratislava, Iris: 1996.
Křivohlavý, J.: Pozitívni psychologie. Praha: Portál 2004.
Křivohlavý, J.: Psychologie zdraví. Praha: Portál 2003.

ELECTRONIC INFORMATION RESOURCES (UL UPJŠ)

Course language:

slovak

Notes:

Course assessment

Total number of assessed students: 1820

A	B	C	D	E	FX
10.88	20.27	24.12	22.25	20.16	2.31

Provides: prof. PhDr. Oľga Orosová, CSc., PhDr. Anna Janovská, PhD.

Date of last modification: 09.09.2024

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/PTPN/17	**Course name:** Psychology of Creativity and Working with Gifted Students in Teacher Practice

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: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
1. active participation in lessons (max. 2 absences) - 30p, 2. own output at the seminar - 40p, 3. seminar work - 30p. By summing the points obtained during the semester, the student obtains the final evaluation according to the given scale: A 87 - 100, B 77 - 86, C 69 - 76, D 61 - 68, E 56 - 60, FX 55 and less. Detailed information in the electronic board of the course in AIS2. The teaching of the subject will be realized by a combined method.

Learning outcomes:
The student understands the basic factors and process of creativity. The student is able to explain the specifics of working with the gifted. He knows the methods of identifying talent and also can apply methods to support creativity and the development of talent in the implementation of creative creativity in education.

Brief outline of the course:
The concept of creativity.
A brief history of the theory of creativity.
Social, psychological and biological factors of creativity.
Cognitive processes in creativity.
Creativity and cognitive style.
Development of creativity.
Talent and giftedness.
Methods of determining creativity and talent.
Methods of developing creativity and talent.
Creativity and talent development programs. Specifics of working with the gifted children.

Recommended literature:
DOČKAL, V. (2006): Inteligencia a tvorivosť, tvorivé nadanie od intelektovej schopnosti po štruktúru osobnosti. In: KUSÁ, D. a kol. EDS. (2006): Zjavná a skrytá tvorivosť. Bratislava: Slovak Academic Press
HŘÍBKOVÁ, L. (2009): Nadání a nadaní. Pedagogicko- psychologické přístupy, modely, výzkumy a jejich vztah ke školské praxi. Praha: Grada Publishing
DACEY, J.S.- LENNON, K.H. (2000): Kreativita. Praha: Grada

GROSS, M.U.M. (2009): Highly Gifted Young People: Development from Childhood to Adulthood. In: SHAVININA, L. (2009): International Handbook on Giftedness. Part one. Springer
KUSÁ, D. a kol. EDS. (2006): Zjavná a skrytá tvorivosť. Bratislava: Slovak Academic Press
KOLKOVÁ, S. (2000): Tvorivosť a jej rozvoj vo voľnočasových aktivitách detí (v školskom klube). Bratislava: Metodické centrum v Bratislave
LOKŠOVÁ, I., - LOKŠA, J.: (2003): Tvořivé vyučování. Praha: Grada
LAZNIBATOVÁ, J. (2004): Špecifiká vývinu a vzdelávania nadaných detí. In: Psychológia a patopsychológia dieťaťa, roč.39, č. 2-3
LAZNIBATOVÁ, J. (2001): Nadané dieťa, jeho vývin, vzdelávanie a podporovanie. Bratislava: Iris
MESÁROŠOVÁ, M. (1998): Nadané deti. Poznávanie a rozvíjanie ich osobnosti. Prešov: Manacon
SZOBIOVÁ, E. (2004): Tvorivosť – Od záhady k poznaniu. Bratislava: Stimul - Centrum informatiky a vzdelávania FIF UK
National and international scientific journlas

Course language:
slovak

Notes:

Course assessment
Total number of assessed students: 81

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Provides: Mgr. Lucia Barbierik, PhD.

Date of last modification: 24.06.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KSSFaK/ ČGUAP/15	**Course name:** Reading Literacy in Educational Process
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: 2	
Recommended semester/trimester of the course: 2.	
Course level: II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 48	

abs	n
100.0	0.0

Provides: doc. PaedDr. Ivica Hajdučeková, PhD.
Date of last modification: 07.03.2025
Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/MPPb/15	**Course name:** Scheduled practice teaching

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 36s
Course method: present

Number of ECTS credits: 1

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities: KPE/MPPa/15 and KPE/PDU/15 and (KPPaPZ/PaSPP/09 or KPPaPZ/PPgU/15)

Conditions for course completion:
Student observes 11 physics lessons and leads one own physics lesson under the guidance of a teacher trainer. Confirmation of classroom visits. Written assessment made by teacher trainer.

Learning outcomes:
Students acquire knowledge by observing the practical applications of teaching skills for teaching the subject of physics and getting known about the organization of school work. Studneets gain first experience with teaching the subject of physics.

Brief outline of the course:
Students observe the process of teaching physics at lower and upper secondary schools and analyze it with teacher trainer. Practice takes place continuously durin the course of the semester. Practice is scheduled once a week at the time of the first to third lesson at schools. The first two lessons are obeservation/teaching, the third lesson - analysing the teaching process under the guidance of the teacher trainer.

Recommended literature:

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 86

abs	n
100.0	0.0

Provides: doc. RNDr. Jozef Hanč, PhD.

Date of last modification: 03.05.2015

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ VPPb/15	**Course name:** Scheduled practice teaching
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week: Per study period:** 36s **Course method:** present	
Number of ECTS credits: 1	
Recommended semester/trimester of the course: 2.	
Course level: II.	
Prerequisities: KPE/MPPa/15 and KPE/PDU/15 and (KPPaPZ/PaSPP/09 or KPPaPZ/PPgU/15)	
Conditions for course completion: Teaching of a specified number of hours and visitations of specified number of classes (1 teaching and 11 visitation of classes). Submission of written assignments (reflection on teaching practice, statement of teaching hours and classes visitations, selected lesson plans).	
Learning outcomes: Application of the knowledge acquired in didactic courses focused on teaching mathematics in pedagogical practice. Development of the student's self-reflection within the framework of the analysis of the lessons taught by the student. Identification of the student's weaknesses in order to shift his/her knowledge. To acquaint students with the atmosphere and the organization of school.	
Brief outline of the course: Visitations of classes in selected lessons Analysis of lessons Lesson plans preparation Classes managed according to prepared lesson plan Reflection on realized classes	
Recommended literature: Mathematics curricula and textbooks for middle and secondary schools Hejný, M.: Teória vyučovania matematiky 2. Bratislava : SPN 1989 M. Hejný, J. Novotná, N. Stehlíková: Dvacet pět kapitol z didaktiky matematiky 2, Univerzita Karlova v Praze - Pedagogická fakulta, Praha, 2004	
Course language: Slovak	
Notes:	

Course assessment
Total number of assessed students: 120

abs	n
100.0	0.0

Provides: doc. RNDr. Ingrid Semanišinová, PhD., RNDr. Veronika Hubeňáková, PhD.

Date of last modification: 24.08.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ FEP1/15	**Course name:** School Computer-Based Physical Laboratory

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: 3

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

Course level: II.

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 seminars and exercises
-submitting all the assignments in accordance with teacher´s instruction
-realization, presentation and defence of the final assignment
Final assessment:
-based on assessment during the semester
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 and in final assessment

Learning outcomes:
By the end of the course student gains an overview about the possible use of digital technologies to support active learning in physics implementing methods of inquiry-based science education. He gains skills to use and develop activities on measuring data with the help of datalogging, measuring on videorecordings and picture and modeling physical processes. Student is able to implement such activities in physics teaching to support active learning, conceptual understanding and inquiry skills ´ development.

Brief outline of the course:
1. Inquiry-based science education (IBSE). Inquiry skills. Digital technologies to enhance IBSE.
2. Inquiry teaching and learning in computer-based laboratory. Digital tools for data collection, videomeasruement, modeling and data processing and analysis.
3. Data collection in real experiment with the help of sensors.
4. Processing and analysis of data gained with the help of sensors.
5.Activities on real-time measurements and processing and data analysis implementing IBSE methods.
6. Videomeasurement. How to measure on videorecording and picture.
7. Processing and analysis of data gained from videomeaurement.
8. Activities on videomeasurement and processing and data analysis implementing IBSE methods

9.Mathematical modeling with the help of computer. Role of computer modeling in science education.
10. Activities on computer modeling implementing IBSE methods.
11.Inquiry-based science education and methods of assessment.
12.Lesson design implementing digital technologies and IBSE methods.

Recommended literature:
Learning by doing the CMA way, available on https://cma-science.nl/
SOKOLOFF, David, THORNTON, Ronald, K.: Interactive Lecture Demonstrations, Wiley , 2006

Course language:
English

Notes:

Course assessment
Total number of assessed students: 17

A	B	C	D	E	FX
76.47	23.53	0.0	0.0	0.0	0.0

Provides: doc. RNDr. Zuzana Ješková, PhD.

Date of last modification: 15.09.2021

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/PSP1/22	**Course name:** School Physical Experiments I

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: II.

Prerequisities:

Conditions for course completion:
continuous written tests
being active in practises
final oral examination

Learning outcomes:
To gain basic skills with demonstration and physics interpretation of school physics experiments belonging to the subject matter in Physics classes at basic schools and high schools. To become familiar with didactic procedures related to using school experiments in different phases of the educational process.

Brief outline of the course:
The practices are aimed at practical realization and physics interpretation of school demonstration experiments from selected topics of the physics subject matter for basic-school and high-school pupils. The emphasis is on familiarizing with teaching aids and didactic devices used in performing school physics experiments and on getting basic skills with their utilization in physics teaching.

Recommended literature:
1.Kašpar,E.,Vachek,J.: Pokusy z fyziky na středních školách, I.díl, SPN Praha,1967
2.Koubek, V. a kol.: Školské pokusy z fyziky, SPN Bratislava, 1992
3.http://physedu.science.upjs.sk/sis/fyzika/experimenty/index.htm

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 19

A	B	C	D	E	FX
73.68	26.32	0.0	0.0	0.0	0.0

Provides: doc. RNDr. Marián Kireš, PhD.

Date of last modification: 15.02.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ PSP2/22	**Course name:** School Physical Experiments II

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: 2.

Course level: II.

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
-tests during the semester 50 points
-active participation 20 points
-first assessment 15points
-second assessment 15points
Final assessment:
-based on assessment during the semester
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 and in final assessment

Learning outcomes:
By the end of the course sudents gain knowledge and broaden skills necessary for understanding methods, techniques and physical interpretations of all types of school physical experiments that are parts of the subject matter in physics classes at lowe and upper secondary schools in accordance with the course curricular content

Brief outline of the course:
The practises are aimed at practical realization and physics interpretation of school demonstration experiments from selected topics of the physics subject matter for basic- and high-school pupils and their convenient incorporation into educational process. The emphasis is on familiarizing with teaching aids and didactic devices used in performing school physics experiments and on extending skills with their utilization in physics teaching. The course content involves:
1. Oscillations
2. Waves and acoustics
3. Electrostatics
4. Electric current
5. Stationar magnetic field
6. Non-stationar magnetic field
7. Alternating current

8.Optics

Recommended literature:

ONDEROVÁ, Ľudmila, KIREŠ, Marián, JEŠKOVÁ, Zuzana, DEGRO, Ján: Praktikum školských pokusov z fyziky II. , PF UPJŠ, Košice, 2004
LEPIL, Oldřich, HOUDEK, Václav, PECHO, Alojz: Fyzika pre 3.ročník gymnázií, SPN, Bratislava, 1998
PIŠÚT, Ján a kol, Fyzika pre 4.ročník gymnázia , SPN, Bratislava, 1987
DEMKANIN, Peter, HORVÁTH, Peter, CHALUPKOVÁ, Soňa, ŠUHAJOVÁ, Zuzana: Fyzika pre 2.ročník gymnázia a 6.ročník gymnázia s osemročným štúdiom, Združenie EDUCO, 2010
DEMKANIN, Peter, HORVÁTHOVÁ, Martina: Fyzika pre 3.ročník gymnázia a 7.ročník gymnázia s osemročným štúdiom, Združenie EDUCO, 2012

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 14

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Provides: doc. RNDr. Zuzana Ješková, PhD.

Date of last modification: 15.02.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ DEX/22	**Course name:** Selected Demonstration Experiments

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: 3

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
Seminar work – a project dealing with hands-on experiments and their role in Physics teachig.
Oral examination

Learning outcomes:
The goal of the course is to develop pedagogic skills and creativity of further Physics teachers through non-traditional physical experiments.

Brief outline of the course:
The aim of the lecture is to show a lot of non-traditional physical experiments which can help students understand physical phenomena and find their connection with everyday life. The experiments are mainly hands-on ones which can be performed with simple tools and don't require any special equipment. The experiments are carried out by students themselves. Through these experiments students are able to gain practical skills, develop experimental habits and verify their theoretical knowledge.

Recommended literature:
1. Onderová Ľ.:Netradičné experimenty vo vyučovaní fyziky, MC Prešov,2002
2. Lorbeer,G.L.,Nelsonová, L.W.: Fyzikální pokusy pro děti, Portál, Praha, 1998
3. Kostič, Ž.: Medzi hrou a fyzikou, Alfa, Bratislava, 1971
4. Kireš, M., Onderová, Ľ.: Fyzika každodenného života v experimentoch a úlohách, JSMF Bratislava 2001, ISBN 80-7097-446-X
5. http://physedu.science.upjs.sk/sis/fyzika/experimenty/index.htm

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 13

A	B	C	D	E	FX
76.92	7.69	0.0	0.0	0.0	15.38

Provides: doc. RNDr. Marián Kireš, PhD.
Date of last modification: 15.02.2022
Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ VPF1/15	**Course name:** Selected General Physics Problems 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: 3

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
1. writing exam 20 points
2. writing exam 20 points
self examples 60 bodov
A 100-90 B 89-80 C 79-70 D 69-60 E 59-50 F 49-0

Learning outcomes:
Physics interpretationf of everyday phenomena can help with deeper understanding of physics problems.

Brief outline of the course:
1. Kinematics and dynamics
2. Hydrostatics and hydrodynamics
3. Surface properties of liquids
4. Thermics and Thermodynamics
5. Thermics and Thermodynamics II
6. Electrostatics
7. Electric field
8. Magnetic field
9. Mechanical oscillations, resonance, waves
10. Acoustics
11. Ray Optics
12. Wave Optics
13. Student assignments presentation

Recommended literature:
1.Nahodil, J.: Fyzika v bežnom živote, Prometheus, Praha, 1996
2.Tulčinskyj, : Zbierka kvalitatívnych úloh z fyziky, SPN, Bratislava, 1990
3.Kašpar, E. : Problémové vyučovanie a problémové úlohy, SPN, Praha1982
4.Feynman, R.P. : Feynmanove prednášky z fyziky 1-5, Alfa, 1985
5.Landau, Kitajgorodskij : Fyzika pre každého, Alfa 1972
6.Lange, V.: To chce vtip!, Alfa, Bratislava, 1988
7.http://kekule.science.upjs.sk/fyzika

8.http://physedu.science.upjs.sk

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 33

A	B	C	D	E	FX
81.82	15.15	0.0	0.0	0.0	3.03

Provides: doc. RNDr. Marián Kireš, PhD.

Date of last modification: 28.03.2020

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ VPF2/22	**Course name:** Selected General Physics 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: 2	
Recommended semester/trimester of the course: 3.	
Course level: II.	
Prerequisities:	
Conditions for course completion: presentation of selected problem 30 p writing exam 70 p A 100-90 B 89-80 C 79-70 D 69-60 E 59-50 F 49-0	
Learning outcomes: Everyday phenomena are used for deeper and conceptual understanding of physics problem.	
Brief outline of the course: 1.Mechanics •Coriolisova force •How Swing works •Bicycle •Tides •Inertia 2.Hydromechanics •Archimedes screw •Water flow •Archimedes principle in Action 3.Kapilarity •Water in plant •Kapilár hysteresis •Bubbles and soap •Floating on water surface 4.Acoustic •Signal production •Human voice •Space acoustic •Home ciname 5.Optics •Sight •Opticalillusions	

•Space imaging
•Atmospheric acoustic
6.Probléms IYPT
•Magnetohydrodynamics
•Bulbs
•Falling spring
•Ship movement
•Thermal exchange
7.Differenct problems
•Sonoluminiscence
•Ice pick
•Kelvin water droplet
•Water stain
8.Student work presentation

Recommended literature:

1. Walker, J.: The Flying Circus of Physics with answers, John Wiley &Sons, 2005
2. Gnädig, P., Honyek, G., Riley, K.: 200 Puzzling Physics Problems with Hints and Solutions, Cambridge University Press, 2001
3. Stepans, J.: Targeting Studnets ` Misconceptions, Showboard, 2003
4. Swartz, C.: Back of the Envelope Physics, The John Hopkins Uni. Press, Baltimore, 2003
5. Nahodil, J.: Fyzika v bežnom živote, Prometheus, Praha, 1996
6. Tulčinskyj, : Zbierka kvalitatívnych úloh z fyziky, SPN, Bratislava, 1990
7. Kašpar, E. : Problémové vyučovanie a problémové úlohy, SPN, Praha1982
8. Feynman, R.P. : Feynmanove prednášky z fyziky 1-5, Alfa, 1985
9. Landau, Kitajgorodskij : Fyzika pre každého, Alfa 1972
10. Lange, V.: To chce vtip!, Alfa, Bratislava, 1988
actual articles

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 0

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0

Provides: doc. RNDr. Marián Kireš, PhD.

Date of last modification: 15.02.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ SHMa/22	**Course name:** Seminar on history of mathematics I

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: 2.

Course level: I., II.

Prerequisities:

Conditions for course completion:
Conditions for continuous evaluation:
1. Participation in teaching in accordance with the study rules and instructions of the teacher.
2. Activity.
3. Homework and tests.
4. Seminar work and its presentation at the seminar – poster from history of mathematics on the selected topic
Conditions for successful completion of the course:
1. Participation in teaching in accordance with the study regulations and according to the instructions of the teacher;
2. Credits will be awarded to students who score at least 50% on homework assignments and tests. Additional points can be achieved for the presentation of a seminar paper.

Learning outcomes:
The student knows the main stages of the development of mathematics, the history of the development of the language of mathematics, the development of selected concepts and some mathematical disciplines. The student understands the parallels between the phylogeny and ontogeny of mathematical thinking.

Brief outline of the course:
Prehistory, ontogeny and phylogeny.
Mathematics in ancient cultures: Egypt, Mesopotamia, China, India.
Mathematics in ancient Greece: Origins of Greek natural philosophy and mathematics. The discovery of incommensurability and its consequences (Pythagoras and his school). Classical problems of Greek mathematics. Problems with infinity (Zeno). Eudoxus' method. Plato, Aristotle, Euclid and his Foundations. Archimedes of Syracuse, Eratosthenes, Apollónios, Claudios Ptolemy, Diophantos.
Arabic mathematics and its relation to medieval European mathematics.
The origins of modern mathematics. The search for the roots of polynomial equations. The origins of analytic geometry. Probability. Infinitesimal calculus. Number theory. Non-Euclidean geometry. The origin of set theory.
Development of mathematical symbolism.

Selected topics in school mathematics from the perspective of the history of mathematics.

Recommended literature:

Burton, D. M.: The History of Mathematics: An Introduction. McGraw−Hill, 2007.
Devlin, K.: Jazyk matematiky. Dokořán, 2002. (in czech)
Čižmár, J . Dejiny matematiky (Od najstarších čias po takmer súčasnosť) Perfekt, 2017. (in slovak)
Mareš , M . Příběhy matematiky. Pistorius, 2011. (in czech)

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 169

A	B	C	D	E	FX
68.64	15.98	6.51	4.14	2.37	2.37

Provides: doc. RNDr. Ingrid Semanišinová, PhD.

Date of last modification: 24.08.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ SHMb/22	**Course name:** Seminar on history of mathematics II

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: 3.

Course level: I., II.

Prerequisities:

Conditions for course completion:
Conditions for continuous evaluation:
1. Participation in teaching in accordance with the study rules and instructions of the teacher.
2. Activity.
3. Homeworks.
4. Seminar work on the selected topic and its presentation at the seminar
Conditions for successful completion of the course:
1. Participation in teaching in accordance with the study regulations and according to the instructions of the teacher;
2. Credits will be awarded to students who score at least 50% on homework assignments and tests. Additional points can be achieved for the presentation of a seminar paper.

Learning outcomes:
Students will demonstrate an understanding of the history of the development of some mathematical disciplines and selected concepts. They will demonstrate this understanding by scoring at least 50% on previous topics and homework assignments.

Brief outline of the course:
1. Algebra and geometry of 16th and 17th century - Tartaglia, Vieta, Descartes
2. Beginning of modern number theory - Mersenne, Fermat
3. Development of infinitesimals -- Newton, Leibniz, Bernoulliovci
4. Complex and hypercomplex numbers -- Hamilton, Cayley, Clifford
5. Combinatory and probability - Pascal, Fermat
6. Algebra in the 18th and 19th century - Gauss, Abel, Galois
7. Non-Euclidean geometries - Gauss, Lobačevskij, Bolyai
8. Mathematical analysis in the 19th century - Cauchy, Bolzano, Weierstrass
9. Set theory - Bolzano, Cantor, Zermelo, Franklin
10. Mathematics in the beginning of 20th century - Peano, Hilbert, Gödel

Recommended literature:
Berlinghoff, W.P., Gouvea, F.Q.: Math through the Ages, MAA Press, 2015.
Čižmár, J . Dejiny matematiky (Od najstarších čias po takmer súčasnosť) Perfekt, 2017.
Hairer, E., Wanner, G.: Analysis by its History, Springer, 2008.

Mareš , M . Příběhy matematiky. Pistorius, 2011.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 29

A	B	C	D	E	FX
51.72	31.03	13.79	3.45	0.0	0.0

Provides: prof. RNDr. Ondrej Hutník, PhD.

Date of last modification: 21.09.2023

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KSSFaK/VSJU/15	**Course name:** Slovak Language for Teachers

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: 2

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

Course level: II.

Prerequisities:

Conditions for course completion:
Conditions for successful completion of the course:
a) regular active participation in seminars,
b) preparation of basic literature and content of lectures,
c) elaboration of seminar work / creative task,
d) successful completion of the final test.
Conditions for obtaining the final evaluation: a) seminar work / creative task b) final test (min. 56%) Final evaluation: 100,00 - 92,00% A 91,99 - 83,00% B 82,99 - 74,00 % C 73.99 - 65.00% D 64.99 - 56.00% E 55.99% and less FX
Prerequisites for successful completion of the course are annually updated on the electronic bulletin board in AIS2.

Learning outcomes:
During the final evaluation, the student demonstrates adequate mastery of the content standard of the course, which is defined by the required literature and seminar content, and demonstrates mastery of the performance standard, within which the student is able to practically apply the standard of standard Slovak in oral and written communications. manuals, gain skill in the bibliographic and citation standard. The graduate of the course normatively masters written communication on the basis of current orthographic rules and knows the basic characteristics of the means of expression of the text and functional language style.

Brief outline of the course:
Characteristics of basic terms of general linguistics (language – speech, language functions, the sign character of language, language levels, content and form in language, individual and general aspect of language units) on interdisciplinary background and with the application to Slovak as a national language. Language standard, codification, usus. Basic codification manuals. Application of orthographic rules in practical documents. Sound culture, pronunciation styles. Orthoepic phenomena in vowels and consonants. Application of rhythmic law and its exceptions. Assimilation and its specific features in Slovak. Style, stylization – methods and demonstration of structure of text components.

Recommended literature:
BÓNOVÁ, I. - JASINSKÁ, L.: Jazyková kultúra nielen pre lingvistov. Košice: UPJŠ 2019. 100 s.

FINDRA, J.: Štylistika slovenčiny. Martin : Osveta, 2004.
FINDRA, J.: Štylistika slovenčiny v cvičeniach. Martin : Osveta, 2005.
KRÁĽ, Á.: Pravidlá slovenskej výslovnosti. Martin: Matica slovenská 2006. 423 s.
Krátky slovník slovenského jazyka. Martin: Matica slovenská 2020.
SABOL, J.- SLANČOVÁ, D. - SOKOLOVÁ, M.: Kultúra hovoreného slova. Prešov, FF UPJŠ 1989.
Pravidlá slovenského pravopisu. Bratislava: Veda 2000 (2013).
SABOL, J. – BÓNOVÁ, I. – SOKOLOVÁ, M.: Kultúra hovoreného prejavu. Prešov: FF PU 2006.
SLANČOVÁ, D.: Praktická štylistika. 2., upravené a doplnené vydanie. Prešov: Slovacontact 1996. 178 s. ISBN 80-901417-9-X.
Slovník súčasného slovenského jazyka. Bratislava: Veda 2006.
Slovník súčasného slovenského jazyka. Bratislava: Veda 2011.
Slovník súčasného slovenského jazyka. Bratislava: Veda 2015.

Course language:
Slovak language

Notes:

Course assessment
Total number of assessed students: 161

A	B	C	D	E	FX
15.53	23.6	30.43	14.29	13.66	2.48

Provides: PhDr. Iveta Bónová, PhD., univerzitná docentka, PhDr. Lucia Jasinská, PhD.

Date of last modification: 24.06.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ FKS/22	**Course name:** Solid State 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: 2

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
Sucessfull passing the course requires presentation of adequate knowledge of concepts, phenomena and laws from Condensed Matter Physics. Knowledge of structural, mechanic, electric, thermal, transport and magnetic properties of solids and potetail possibilities of their practical applications. The number of credits reflects the extent of the course (2 hours of lectures) and the fact that the contents of the course represents part of state exam in magister degree.
During semester students will prepare two written works on the given topic and they will actively participate in the final debate on the topics which are identical to the content of the lectures. Treshold for for sucessfull passing the course is 50 % of the sum of obtained scores from the tests and oral exam. Maximal total score from both tests represents 30 % from the total score.
The scale of the total score is defined as follows:
A 100-91%
B 90-81%
C 80-71%
D 70-61%
E 60-50%
Fx 49-0%

Learning outcomes:
Sucessfull passing the course will significantly contribute to the expertise of the teacher in physics. Student will learn basic concepts in Condensed matter physics and understand phenomena in solids. He will also learn selected theoretical approaches and used experimental techniques in Condensed matter physics. In addition, he will also be able to interpret simple experimental observations based on quantum-mechanical phenomena.

Brief outline of the course:
1.week: Structure of crystals. Amorphous materials. Space and crystal lattice, elementar cell. Bravais lattices and crystallographic systems. Directions and planes in a crystal lattice – Miller´s indexes. Reciprocal lattice.
2. week Methods of structural analysis. Diffraction of X-ray radiation on crystals. Bragg´s equation and Laue´s condition, relation between them. Ewald´s construction for different experimental techniques.

3. week: Mechanical properties of solids and perturbations in crystal lattice. Classification of solids according to nature of bonding among elements in crystal lattice. Basic types of bondings (ion, covalent, metal, Van der Walls, hydrogen)
4. week: Thermal properties of solids – Einstein and Debye theory of specific heat. Eletrical properties of solids.
5. week: Sommerfield´s theory. Density of electronic states. Influence of temperature on the distribution of free electrons. Fermi – Dirac distribution function.
6. week: Electron in periodic potential. Energy spectrum of electrons in crystal. Kronig – Penney ´s model. Effective mass of electron.
7. week: Concept of holes. Semiconductors. Electrical conductivity of metals and semiconductors adopting properties of energy spectrum of electrons.
8. week: Transport properties in metals and semiconductors – Hall effect, magnetoresistance, photoconductivity, contact phenomena, quantum Hall effect.
9. week: Macroscopic quantum phenomena: Superconductivity and Superfluidity.
10. week: Magnetic properties of solids – orbital and spin magnetic moment of atom. Definition of basic magnetic quantities (magnetization, polarization, susceptibility, permeability). Vector model of atom.
11. Classification of magnetic materials according to nature of magnetic interactions. Diamagnetic and paramagnetic systems.
12 week: Basic properties of ferromagnets. Magnetic hysteresis, coercitive field. Domain structure, physical reasons ledaing to the domain structure.

Recommended literature:

H. Ibach, H. Lüth: Solid-State Physics. Springer - Verlag, Berlin, 1993.
Ch. Kittel: Introduction to Solid State Physics. John Wiley & Sons, Inc. 1976.

Course language:
Slovak, English

Notes:
The course is given in attendance form, if a need arises, online form using MS Teams can be adopted.

Course assessment
Total number of assessed students: 37

A	B	C	D	E	FX
67.57	21.62	8.11	2.7	0.0	0.0

Provides: prof. RNDr. Peter Kollár, DrSc.

Date of last modification: 19.12.2022

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ SVKD/04	**Course name:** Student Scientific Conference

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: 2., 4.

Course level: I., II.

Prerequisities:

Conditions for course completion:
presentation of results of studnets´ research work at Students´ scientific conference

Learning outcomes:
Student gains experience and skills in processing and presentation of results of his research work.

Brief outline of the course:
Presentation of results of studnets´ research work at Students´ scientific conference.

Recommended literature:
Based on the recommendations of supervisor

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 9

abs	n
100.0	0.0

Provides:

Date of last modification: 03.05.2015

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ SVK/10	**Course name:** Students scientific conference

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: I., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
Individual scientific work of students. Publishing of obtained results in a written form and as a public presentation.

Brief outline of the course:

Recommended literature:
With respect to the research problematics (article in journals, books).

Course language:
Slovak or English

Notes:

Course assessment
Total number of assessed students: 101

A	B	C	D	E	FX
99.01	0.99	0.0	0.0	0.0	0.0

Provides:

Date of last modification: 01.12.2021

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPE/ MPPa/15	**Course name:** Supervised Teaching Practice
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week: Per study period:** 36s **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 1.	
Course level: II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 868

abs	n
100.0	0.0

Provides: doc. PhDr. Beata Gajdošová, PhD., doc. PaedDr. Renáta Orosová, PhD., Mgr. Zuzana Vagaská, PhD.
Date of last modification: 14.09.2024
Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ PDU/15	**Course name:** Teaching Methodology and Pedagogy

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

Number of ECTS credits: 5

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 947

A	B	C	D	E	FX
24.08	27.98	26.19	14.68	6.55	0.53

Provides: doc. PaedDr. Renáta Orosová, PhD., Mgr. Zuzana Vagaská, PhD.

Date of last modification: 18.09.2024

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/UPR/15	**Course name:** The Art of Aiding by Verbal Exchange

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: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
1. Active participation in seminars
2. Elaboration and presentation of PPT presentation on the assigned topic. Maximum number of points 20; minimum number of points 11.
3. Final test in the range of 20 questions from selected chapters and lectures. Maximum number of points 20; minimum number of points 11. The final evaluation (mark) is the sum of points for the presentation and the test. A 40b - 37b B 36b - 33b C 32b - 29b D 28b - 25b E 24b - 21b FX 20b - 0b
The evaluation of the course and its subsequent completion will be based on clearly and objectively set requirements, which will be set in advance and will not change. The aim of the assessment is to ensure an objective and fair mapping of the student's knowledge while adhering to all ethical and moral standards. There is no tolerance for students' fraudulent behavior, whether in the teaching process or in the assessment process.

Learning outcomes:
Provide students with basic information about a systemic approach to helping. Train interviewing, clarify orders. Reflect on help options.
The student is able to demonstrate an understanding of the theoretical principles of conducting a helping conversation.
The student is able to describe, explain and evaluate in what context to use which of the selected techniques to help the interview with the individual.
The student is able to use basic selected techniques when working with an individual in the interview process.
The method of teaching the subject will be oriented to the student. Lecturers will be interested in students' needs, expectations and opinions so as to encourage them to think critically by expressing respect and feedback on their opinions and needs.
The content of the curriculum will be based on primary and high-quality sources that will reflect the topicality of the topics so as to ensure the connection of the curriculum with other subjects and also the connection of the curriculum with practice. Students will be expected to take an active approach in lectures and seminars with an emphasis on their independence and responsibility.

Brief outline of the course:

Psychological preparation for conducting an interview. Self-reflection of one's own possibilities, abilities to lead a conversation, to help. Possibilities of helping with conversations from the point of view of selected psychological approaches. Systematic approach to helping. Interview and professional ways to help and control. Objectivist and constructivist framework of conversation in theory and practice. Is it possible to help with control? Opening the interview, negotiating the course, course, ending the interview. Constructivist questions in the interview. Analysis of individual phases of conducting the interview. Reflex team possibilities of help in conversation. Models of reflective teams. Model situations of conducting an interview with an individual. Model situations of conducting an interview with a group. Professional possibilities, advantages and pitfalls of solving problems with an individual, with a group.

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 199

A	B	C	D	E	FX
90.95	3.02	4.52	1.01	0.5	0.0

Provides: Mgr. Ondrej Kalina, PhD.

Date of last modification: 10.02.2025

Approved: prof. PhDr. Oľga Orosová, CSc., prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Peter Kollár, DrSc.