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University: P. J. Šafárik University in Košice							
Faculty: Faculty of Science							
Course ID: CJP/ PFAJAKA/07	Course name: Academic English						
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: cor	nd the method: ce rse-load (hours): dy period: 28 mbined, present						
Number of ECTS cro	edits: 2						
Recommended seme	ster/trimester of the course:						
Course level: I., II., N	1						
Prerequisities:							
Conditions for cours Active classroom par 1 test (10th week), no Presentation on chose Final evaluation- ave Grading scale: A 93-	e completion: ticipation, assignments handed in on time, 2 absences tolerated o retake. en topic rage assessment of test (40%), essay (30%) and presentation (30%). 100%, B 86-92%, C 79-85%, D 72-78%, E 65-71%, FX 64% and less						
Learning outcomes: The development of s of their linguistic cor syntactic aspects, dev for a given purpose, v	students' language skills - reading, writing, listening, speaking, improvement npetence - students acquire knowledge of selected phonological, lexical and elopment of pragmatic competence - students can effectively use the language with focus on Academic English, level B2.						
Brief outline of the c Formal and informal Academic English an Key academic verbs a Linking words in aca Word-formation - affi abstract Selected aspects of E Selected functional g paraphrasing	ourse: English d its specific features and nouns demic writing, writing a paragraph, word-order, topic sentences ixation nglish pronunciation, academic vocabulary grammar structures - defining, classifying, epressing opinion, cause-effect,						
Recommended litera Seal B.: Academic En T. Armer :Cambridge M. McCarthy M., O' Zemach, D.E, Rumise Olsen, A. : Active Vo www.bbclearningeng Cambridge Academic	ture: ncounters, CUP, 2002 English for Scientists, CUP 2011 Dell F Academic Vocabulary in Use, CUP 2008 ek, L.A: Academic Writing, Macmillan 2005 icabulary, Pearson, 2013 lish.com c Content Dictionary, CUP, 2009						

Course language: English language, level B2 according to CEFR.							
Notes:							
Course assessment Total number of assessed students: 400							
А	В	С	D	Е	FX		
34.75	22.0	15.75	9.5	6.25	11.75		
Provides: Mgr. Viktória Mária Slovenská							
Date of last mo	odification: 19.09	0.2022					
Approved: doc	. RNDr. Zuzana J	ešková, PhD., pr	of. Mgr. Jarosla	v Hofierka, PhD.			

University: P. J.	. Šafárik Univers	ity in Košice							
Faculty: Faculty	y of Science								
Course ID: KPI ALP/06	Course ID: KPE/ Course name: Alternative Education ALP/06 Course name: Alternative Education								
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 EC'	I'S credits: 2								
Recommended	semester/trimes	ster of the cours	e: 4.						
Course level: I.									
Prerequisities:									
Conditions for	course completi	on:							
Learning outco	mes:								
Brief outline of	the course:								
Recommended	literature:								
Course languag	ge:								
Notes:									
Course assessment Total number of assessed students: 318									
А	В	С	D	Е	FX				
69.18 25.16 2.83 0.63 0.31 1.89									
Provides: Mgr. Katarína Petríková, PhD.									
Date of last mo	dification: 20.06	5.2022							
Approved: doc.	RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jaroslav	v Hofierka, PhD.					

University: P. J. Šafá	University: P. J. Šafárik University in Košice							
Faculty: Faculty of S	cience							
Course ID: ÚGE/ BKP/14	Course ID: ÚGE/ Course name: Bachelor Project 3KP/14							
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	nd the method: rse-load (hours): y period: esent							
Number of EC18 cr	ealls: 2							
Course level: I	ster/trimester of the (course: 5.						
Duonoquisitios:								
Prerequisities:								
Conditions for cours	e completion:							
Learning outcomes:								
Brief outline of the c	ourse:							
Recommended litera	ture:							
Course language:								
Notes:								
Course assessment Total number of assessed students: 115								
	abs n							
97.39 2.61								
Provides: ;Ing. Ján Bóna								
Date of last modification: 03.05.2015								
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.								

r								
University: P. J. Šafá	rik University in Košice							
Faculty: Faculty of S	Faculty: Faculty of Science							
Course ID: ÚFV/ BKP2/14	Course ID: ÚFV/Course name: Bachelor ProjectBKP2/14							
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present							
Number of ECTS cr	edits: 4							
Recommended seme	ster/trimester of the co	ourse: 5.						
Course level: I.								
Prerequisities:								
Conditions for cours Finalization and subr acceptance of its con	e completion: nission of the bachelor r tent by the supervisor.	project based on the assignments of the supervisor and						
Learning outcomes: Finished bachelor pr is able to process kon correctly, prepare a p	Learning outcomes: Finished bachelor project prepared as a design of a bachelor thesis, as an evidence that student is able to process konwledge available in different resources, citate correctly and keep the layout correctly, prepare a presentation and share the results in front of experts.							
Brief outline of the c Using the created str second (finalization) finalizes the project bibliographic referen results.	Brief outline of the course: Using the created structure and partial work on the bachelor project, the student implements the second (finalization) phase of elaboration of the bachelor thesis based on the following activities: finalizes the project into a thesis in required formal and technical forms with correct citations of bibliographic references, implements the principles of presentation and reporting the work and its results.							
Recommended litera 1. Resources (literatu 2. Regulations No. 1/	ture: re, papers) based on the 2011 about final works	project assignments. (thesis for University of P.J. Safarik.						
Course language: Slovak, English								
Notes:								
Course assessment Total number of asse	ssed students: 12							
	abs	n						
100.0 0.0								
Provides:	Provides:							
Date of last modification: 31.01.2022								
Approved: doc. RNE	r. Zuzana Ješková, PhΓ)., prof. Mgr. Jaroslav Hofierka, PhD.						

University: P. J	. Šafárik Univers	sity in Košice						
Faculty: Faculty of Science								
Course ID: ÚFV/ BSSM/15Course name: Bachelor State Exam Physics								
Course type, sc Course type: Recommended Per week: Per Course metho	ope and the me d course-load (h r study period: d: present	thod: ours):						
Number of EC	TS credits: 1							
Recommended	semester/trime	ster of the cours	e:					
Course level: I.								
Prerequisities:								
Conditions for Answering que	course complete stions concerning	i on: g selected fields c	of the subjects of	f Bachelor state e	xam.			
Learning outco Basic knowledg	mes: ge and overview	of konowledge in	the fields stated	d by the Bachelro	state exam.			
 Brief outline of the course: Exam in the field of knowledge in physics consisting of an overview of the following fields: Mechanics and molecular physics Electricity and magnetism Oscillations and waves, optics Nuclear physics General biophysics Theoretical mechanics Theory of electromagnetic field Statistical physics 								
Recommended	literature:							
Course languaş Slovak	ge:							
Notes:								
Course assessment Total number of assessed students: 29								
А	В	С	D	E	FX			
41.38	41.38 31.03 17.24 0.0 6.9 3.45							
Provides:				·				
Date of last mo	dification: 16.02	2.2016						
Approved: doc.	RNDr. Zuzana	Ješková, PhD., pr	of. Mgr. Jarosla	v Hofierka, PhD.				

University: P. J.	. Šafárik Univers	ity in Košice						
Faculty: Faculty	y of Science							
Course ID: ÚG SPB1/21	Course ID: ÚGE/Course name: Bachelor Thesis Project Seminar 1SPB1/21							
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 EC	TS credits: 3							
Recommended	semester/trimes	ster of the cours	e: 5.					
Course level: I.								
Prerequisities:								
Conditions for	course completi	on:						
Learning outco	mes:							
Brief outline of	the course:							
Recommended	literature:							
Course languag	ge:							
Notes:								
Course assessm Total number of	Course assessment Total number of assessed students: 3							
А	В	С	D	Е	FX			
0.0	0.0 33.33 66.67 0.0 0.0 0.0							
Provides: prof.	Provides: prof. Mgr. Jaroslav Hofierka, PhD., doc. Mgr. Ladislav Novotný, PhD.							
Date of last mo	dification: 27.06	5.2022						
Approved: doc.	RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.				

University: P. J.	University: P. J. Šafárik University in Košice							
Faculty: Facult	y of Science							
Course ID: ÚG SPB2/21	Course ID: ÚGE/ SPB2/21Course name: Bachelor Thesis Project Seminar 2							
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present								
Number of EC	FS credits: 3							
Recommended	semester/trimes	ster of the cours	e: 6.					
Course level: I.								
Prerequisities:								
Conditions for	course completi	on:						
Learning outco	mes:							
Brief outline of	the course:							
Recommended	literature:							
Course languag	ge:							
Notes:								
Course assessment Total number of assessed students: 3								
А	В	С	D	Е	FX			
100.0	100.0 0.0 0.0 0.0 0.0							
Provides: prof. Mgr. Jaroslav Hofierka, PhD., doc. Mgr. Ladislav Novotný, PhD., Mgr. Katarína Onačillová, PhD.								
Date of last modification: 27.06.2022								
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.								

University P I	Šafárik Univers	sity in Košice						
Faculty: Faculty	y of Science							
Course ID: UF BPO/14	Course ID: ÚFV/ BPO/14Course name: Bachelor Thesis and its Defence							
Course type, sc Course type: Recommended Per week: Per Course metho	ope and the me d course-load (h r study period: d: present	thod: ours):						
Number of EC	FS credits: 4							
Recommended	semester/trime	ster of the cours	e:					
Course level: I.								
Prerequisities:								
Conditions for Required numb	course complet er of credits gair	ion: ned basedon subm	nitting the bache	elor thesis.				
Learning outco	mes:							
Brief outline of Presentation of professional con	the course: the bachelor the mmission.	esis results, answ	ering questions	of the reviewer	and members of			
Recommended	literature:							
Course languag Slovak or Engli	ge: sh							
Notes:								
Course assessm Total number of	Course assessment Total number of assessed students: 61							
А	В	С	D	Е	FX			
86.89	86.89 8.2 3.28 1.64 0.0 0.0							
Provides:								
Date of last mo	Date of last modification: 07.12.2021							
Approved: doc.	Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.							

University: P. J.	Šafárik Univers	ity in Košice			
Faculty: Faculty	of Science				
Course ID: ÚG BPO/14	Course name: Bachelor Thesis and its Defence				
Course type, sc Course type: Recommended Per week: Per Course method	ope and the met l course-load (he • study period: d: present	hod: ours):			
Number of EC	IS credits: 4				
Recommended	semester/trimes	ter of the cours	2:		
Course level: 1.					
Prerequisities:					
Conditions for	course completi	o n:			
Learning outco	mes:				
Brief outline of	the course:				
Recommended	literature:				
Course languag	ge:				
Notes:					
Course assessm Total number of	ent assessed studen	ts: 185			
Α	В	С	D	E	FX
37.3	7.3 28.65 16.76 8.11 7.57 1.62				1.62
Provides:					
Date of last mo	dification: 07.12	.2021			
Approved: doc.	RNDr. Zuzana J	ešková, PhD., pr	of. Mgr. Jarosla	v Hofierka, PhD.	

University: P. J	University: P. J. Šafárik University in Košice					
Faculty: Facult	y of Science					
Course ID: ÚG KAR/05	E/ Course na	ame: Basics of K	arstology and Sp	beleology		
Course type, sc Course type: I Recommended Per week: 2 Pe Course metho	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 EC	TS credits: 2					
Recommended	semester/trimes	ster of the cours	e: 4.			
Course level: I.						
Prerequisities:						
Conditions for	course completi	ion:				
Learning outco	omes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	ge:					
Notes:						
Course assessm Total number of	Course assessment Total number of assessed students: 226					
А	В	С	D	Е	FX	
77.88	.88 15.04 5.31 0.0 1.77 0.0				0.0	
Provides: RNDr. Alena Gessert, PhD.						
Date of last modification: 27.08.2020						
Approved: doc.	. RNDr. Zuzana J	Ješková, PhD., pr	of. Mgr. Jaroslav	/ Hofierka, PhD.		

University: P. J.	University: P. J. Šafárik University in Košice					
Faculty: Faculty	y of Science					
Course ID: ÚG ZKAR/21	E/ Course na	/ Course name: Basics of Karstology and Speleology				
Course type, sc Course type: I Recommended Per week: 1 / 1 Course metho	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 EC	TS credits: 3					
Recommended	semester/trimes	ster of the cours	e: 4.			
Course level: I.	, II					
Prerequisities:						
Conditions for	course completi	on:				
Learning outco	omes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	ge:					
Notes:	Notes:					
Course assessm Total number of	Course assessment Total number of assessed students: 11					
А	В	С	D	Е	FX	
45.45	45.45 18.18 18.18 18.18 0.0 0.0				0.0	
Provides: RNDr. Alena Gessert, PhD., doc. Ing. Katarína Bónová, PhD.						
Date of last mo	dification: 20.02	2.2023				
Approved: doc.	RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jaroslav	v Hofierka, PhD.		

University: P. J.	University: P. J. Šafárik University in Košice						
Faculty: Faculty	of Science						
Course ID: ÚBE BDD/05	EV/ Course na	me: Biology of (Children and Ad	lolescents			
Course type, sco Course type: L Recommended Per week: 2 / 0 Course method	Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 0 Per study period: 28 / 0 Course method: present						
Number of ECT	S credits: 2						
Recommended s	semester/trimes	ster of the course	e: 4., 6.				
Course level: I.							
Prerequisities:							
Conditions for c Written test	ourse completi	on:					
Learning outcome Acquisition of the systems of the hu with development of ontogenesis.	Learning outcomes: Acquisition of basic morphological and physiological knowledge about individual organs and systems of the human body with a focus on the specifics of childhood and adolescence. Familiarity with developmental and growth characteristics and with the most common diseases in these stages of ontogenesis.						
Brief outline of Human ontogen circulatory, resp system. Nervous population and e	Brief outline of the course: Human ontogenesis. Postnatal development. Age specific features of skeletal and muscalar, circulatory, respiratory, gastrointestinal and urinary systems. Reproductive system. Endocrine system. Nervous system. Age specifics of selected diseases and drug dependence arise. Human population and environment						
Recommended literature: Drobný I., Drobná M.: Biológia dieťaťa pre špeciálnych pedagógov I. a II. Bratislava, PdF UK, 2000 Lipková V.: Somatický a fyziologický vývoj dieťaťa. Osveta Bratislava, 1980 Malá H. Klementa I.: Biológia detí a dorastu Bratislava, SPN 1989							
Course languag	e:						
Notes:							
Course assessme Total number of	Course assessment Total number of assessed students: 1717						
A	В	С	D	Е	FX		
31.74	23.76	17.94	16.83	9.2	0.52		
Provides: doc. R	NDr. Monika K	assayová, CSc.					
Date of last modification: 20.04.2022							
Approved: doc.	Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.						

University: P. J. Šafa	University: P. J. Šafárik University in Košice					
Faculty: Faculty of S	Faculty: Faculty of Science					
Course ID: ÚGE/ KAG/15	Course name: Cartography and Geoinformatics					
Course type, scope a Course type: Lectu Recommended cou Per week: 2 / 2 Per Course method: pr	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 cr	redits: 5					
Recommended sem	ester/trimester of the course: 1.					
Course level: I.						
Prerequisities:						

Conditions for course completion:

During the semester it is necessary to pass out the work outputs from the exercises. The knowledge gained on the exercises will be verified by continuous written examinations. The number of work outputs and written examinations will be announced at the beginning of the semester. It is possible to obtain 30% of the assessment criteria for the exercise (work outputs and written examinations). The final evaluation of the exercises is determined by the instructor of the subject based on the completion of tasks in the exercises during the semester. The final evaluation of the study subject is based on the combination of the evaluation conditions from the exercise and the final exam. The final exam may be enrolled by a student who has fulfilled the requirements for attending the exercises and who achieves a raiting of at least minimum 16 % in evaluation in exercises. The final exam (70 %). Credits are awarded only to a student who achieves rating at least at the grade level of E, i.e. he achieves the raiting of at least 51 %. Credits will not be awarded to a student who does not meet the requirements of the exercise and the exam is rated FX. Rating scale: A (100-91%), B (81-90%,) C (71-80%), D (61-70%), E (51-60%).

Learning outcomes:

The main learning outcomes include theoretical and practical skills in cartography and geoinformatics. Students understand cartographic and GIS terminology, students can apply cartographic approaches and methods using GIS, projections and define the content and composition of maps in GIS. The student masters the design, use and evaluation of the properties of cartographic representations in various geoinformatics applications.

Brief outline of the course:

Cartography - the branch of science, position in the system of sciences, the history of cartography, topographic mapping in Slovakia; Cartographic projects, cartographic interpretation; Description maps, geographical names, cartographic generalization, State map series; Cartometry and morphometry; Mathematical cartography (reference area map projection and distortion).

Geoinformatics – the branch of science, elements of GIS, digital representation of landscape, raster and vector data, data collection and processing data for GIS, geospatial database, visualization and cartographic representation using GIS, applications of GIS.

Recommended literature:

HOFIERKA, J., J. KAŇUK, M. GALLAY, 2014. Geoinformatika. Košice: Univerzita Pavla Jozefa Šafárika v Košiciach. ISBN 978-80-8152-178-2.

HOJOVEC, V. et al., 1987. Kartografie. Praha: Geodetický a kartografický podnik v Praze. ISBN 29-621-87.

LONGLEY, P.A., M. GOODCHILD, D. J. MAGUIRE, D. W. RHIND, 2010. Geographic Information Systems and Science. 3rd ed. Hoboken: Wiley & Sons, ISBN 978-0-470-72144-5. PRAVDA, J., D. KUSENDOVÁ, 2004. Počítačová tvorba tematických máp. Bratislava: Univerzita Komenského v Bratislave. ISBN 80-223-2011-0.

ROBINSON, A. H. et al., 1995. Elements of Cartography. 6th ed. Hoboken: Wiley & Sons. ISBN 0-471-55579-7.

VOŽENÍLEK, V. et al., 2011. Metody tematické kartografie - Vizualizace prostorových jevů. Olomouc: Univerzita Palackého v Olomouci. ISBN 978-80-24427-90-4.

Course language:

Slovak

Notes:

withot notes

Course assessment

Total number of assessed students: 425

А	В	С	D	Е	FX
15.29	21.65	20.94	19.29	18.12	4.71

Provides: doc. RNDr. Ján Kaňuk, PhD., Mgr. Patrícia Gurová, Mgr. Ondrej Tokarčík

Date of last modification: 28.09.2020

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J. Šaf	University: P. J. Šafárik University in Košice					
Faculty: Faculty of	Faculty: Faculty of Science					
Course ID: ÚGE/ KRT1/21	Course name: Cartography and Geoinformatics 1					
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 c	Number of ECTS credits: 5					
Recommended semester/trimester of the course: 1.						
Course level: I.						
Prerequisities:	Prerequisities:					

Conditions for course completion:

During the semester, it is necessary to submit the results of the exercises. The acquired knowledge at the exercises will be verified by continuous examinations. The number of work outputs and written examinations will be announced at the beginning of the semester. It is possible to obtain 30% for meeting the evaluation criteria at the exercise (work outputs and written tests). The final evaluation of the exercises is determined by the instructor of the subject on the basis of completing the tasks in the exercises during the semester. The final evaluation of the course is based on a combination of meeting the evaluation conditions from the exercises and the final exam. A student who has met the conditions for passing the course at the seminars can apply for the final exam (70%). Credits will be awarded only to a student who achieves the final grade at least at the level of grade E. Credits will not be awarded to a student who does not meet the requirements of the exercises and the final exam is evaluated by FX. Rating scale: A (100-91%), B (81-90%,) C (71-80%), D (61-70%), E (51-60%).

Learning outcomes:

Knowledge: The student will gain theoretical knowledge in the field of cartography and geoinformatics. The student is able to understand cartographic and geoinformatics terminology, appropriately applies cartographic methods for displaying spatial information using a geographic information system, acquires a theoretical basis for the application of cartographic representations and coordinate systems and defines the composition of maps in GIS. The student acquires knowledge of the mathematical principles of mapping the Earth on a map and understands cartographic distortions, classification of cartographic representations, simple and false representations. The student acquires knowledge from the Slovak state map work (civil, military) and also acquires knowledge in cartographic expression methods (cartogram, cartodiagram) and the basics of cartometry.

Skills: The student will learn to acquire and work with the basics of the ArcGIS program, its control, purpose and structure, the student acquires basic orientations and work in the ArcMap program, and work in the basic tools of the "Standard" and "Tools" packages, "Table of contents" window , controls the layout and properties of the "Select features" and "Data - Export Data" tools. The student understands cartographic representations in ArcGIS. The student acquires skills in working with paper maps, scale and measurements on maps, can orient in the field using a map, compass

and can determine the azimuth. The student has skills in creating a point layer, has skills in the principles of expressing point phenomena in ArcGIS, the creation of a line layer as well as in the principles of expressing line phenomena in ArcGIS, isolines. Merge lines, Split lines. He also has skills in creating a surface layer, in the principles of expressing surface phenomena in ArcGIS, Polygon, Auto Complete Polygon, Cut Polygon Tools, Merge polygons. Controls the creation of map output - Layout view, page settings, map export and output parameters settings. The student has skills in the composition of the map - setting the compositional elements of the map and in creating the map output.

Competences: The student is able to work with a high degree of independence with 3D geodata, their processing and analysis, has all the prerequisites for independent creation of digital map output with available software support within GIS. The student is fully competent in the composition of the map - setting its compositional elements. When creating a map output, the student is able to independently or in cooperation in the relevant work team to communicate and collaborate with other experts, formulate opinions and recommendations in the creation and use of GIS in cartography.

Brief outline of the course:

Lectures: Cartography, basic concepts and position in the geosciences system. History and development of cartography. Geoinformatization cartography, digital cartography. Cartography and geoinformatics and their correlation. Geoinformatics, basic terms and definitions of GIS; online maps. Digital representation of objects and phenomena in GIS, vector and raster format. Principles of methodologies of cartographic modeling of geographical information in GIS. Design, use and evaluation of cartographic imaging properties in geoinformatics applications. Map - definition, map criteria, basic properties and elements of the map, categorization of maps, map scale. Principles of mapping the Earth, geoid, reference and display areas, global and local coordinate systems, the Earth and geographical lines and their importance for cartography and geoinformatics. Cartographic distortions, classification of cartographic representations, simple (azimuthal, conical, cylindrical) and false representations. Cartographic representations used in the Slovak state map work. Slovak state map work (civil, military), ZB-GIS, samples. Workflow for creating topographic maps, mapping, overview of 3D data collection in the field and used instrumentation. Map creation basics of map language, cartographic characters, map markers - point, line and area phenomena. Cartographic expression methods - cartogram, cartodiagram, classification and types of cartograms and cartodiagrams. Map composition, map content, map colors, map description, geographical nomenclature, map design. Basics of cartometry - positioning, measuring and determining distances, measuring and determining the size of surfaces, measuring oriented directions and angles, determining altitudes, determining the slope, profile construction, hypsometric curve. Classification of field formations. Thematic maps of various scales, applications, interpretation of maps. Maps on the Internet, map servers, Google Maps / Earth, Openstreetmaps. Office of Geodesy, Cartography and Cathars of the Slovak Republic - Geoportal.

Exercises: Basic introduction to ArcGIS, its purpose and control, program structure, data formats (* .mxd, * .shp), basic terminology - project, data layer - point, line, area, "features" and "graphics". Basic orientation in ArcMap, introduction of basic tools of the "Standard" and "Tools" packages, window "Table of contents", arrangement and properties of layers, tool "Select features" and "Data - Export Data". Defining a coordinate system, cartographic representations in ArcGIS. Introducing the options of the "Layer Properties" dialog box, working with the attribute table, working with files. Basic table editing, preparation and connection of databases (excel / shapefile) using the "Join" function. Working with paper maps, scale and measurement on maps. Orientation in the field using a map, compass, azimuth determination. Georeferencing. Point layer formation; principles of expressing point phenomena in ArcGIS. Linear layer formation; principles of expressing surface

phenomena in ArcGIS, Polygon, Auto Complete Polygon, Cut Polygon Tools, Merge polygons. Cartogram, cartodiagram. Map output creation - Layout view, page settings, Map export and output parameters settings. Map composition - setting the map composition elements and creating map output.

Recommended literature:

HOFIERKA, J., J. KAŇUK, M. GALLAY, 2014. Geoinformatika. Košice: Univerzita Pavla Jozefa Šafárika v Košiciach. ISBN 978-80-8152-178-2.

HOJOVEC, V. et al., 1987. Kartografie. Praha: Geodetický a kartografický podnik v Praze. ISBN 29-621-87.

LONGLEY, P.A., M. GOODCHILD, D. J. MAGUIRE, D. W. RHIND, 2010. Geographic Information Systems and Science. 3rd ed. Hoboken: Wiley & Sons, ISBN 978-0-470-72144-5. PRAVDA, J., D. KUSENDOVÁ, 2004. Počítačová tvorba tematických máp. Bratislava:

Univerzita Komenského v Bratislave. ISBN 80-223-2011-0.

ROBINSON, A. H. et al., 1995. Elements of Cartography. 6th ed. Hoboken: Wiley & Sons. ISBN 0-471-55579-7.

VOŽENÍLEK, V. et al., 2011. Metody tematické kartografie - Vizualizace prostorových jevů. Olomouc: Univerzita Palackého v Olomouci. ISBN 978-80-24427-90-4.

Course language:

Notes:

Course assessment

Total number of assessed students: 84

А	В	С	D	Е	FX
13.1	15.48	28.57	26.19	16.67	0.0

Provides: doc. RNDr. Ján Kaňuk, PhD.

Date of last modification: 27.06.2022

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J	. Šafárik Univers	ity in Košice				
Faculty: Facult	y of Science					
Course ID: ÚG KRT2/21	E/ Course n a	Course name: Cartography and Geoinformatics 2				
Course type, sc Course type: I Recommended Per week: 2 Pe Course metho	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 EC	TS credits: 2					
Recommended	semester/trimes	ster of the cours	e: 2.			
Course level: I.						
Prerequisities:						
Conditions for	course completi	on:				
Learning outco	omes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	ge:					
Notes:	Notes:					
Course assessment Total number of assessed students: 40						
А	В	С	D	Е	FX	
50.0	50.0 30.0 12.5 5.0 0.0 2.5				2.5	
Provides: Mgr. Ján Šašak, PhD., Mgr. Daniela Ujlakiová						
Date of last mo	Date of last modification: 27.06.2022					
Approved: doc.	RNDr. Zuzana	Ješková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.		

r						
University: P. J. Šafárik University in Košice						
Faculty: Faculty of Science						
Course ID: KOP/ OPaPDV/14	Course name: Civil Law a	Course name: Civil Law and Intellectual Property Rights				
Course type, scope a Course type: Lectur Recommended cour Per week: 2 Per stu Course method: pre	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 cr	edits: 4					
Recommended seme	ster/trimester of the cours	e: 3., 5.				
Course level: I., N						
Prerequisities:						
Conditions for cours	se completion:					
Learning outcomes:						
Brief outline of the c	course:					
Recommended litera	ature:					
Course language:						
Notes:						
Course assessment Total number of asse	Course assessment Total number of assessed students: 113					
	abs n					
93.81 6.19						
Provides: doc. JUDr. Renáta Bačárová, PhD., LL.M., prof. JUDr. Peter Vojčík, CSc.						
Date of last modification: 23.09.2021						
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.						

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: CJP/ PFAJKKA/07Course name: Communicative Competence in English					
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: combined_present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course:					
Course level: I., II., N					
Prerequisities:					
Conditions for course completion: Active participation in class and completed homework assignments. Students are allowed to miss two classes at the most. 2 credit tests (presumably in weeks 6/7 and 12/13) and an oral presentation in English. Final evaluation consists of the scores obtained for the 2 tests (50%) and the presentation (50%). Final grade will be calculated as follows: A 93-100 %, B 86-92%, C 79-85%, D 72-78%, E 65-71%, EX 64.9% and loss					
Learning outcomes:					
Brief outline of the course:					
Recommended literature: www.bbclearningenglish.com Štěpánek, Libor a kol. Academic English-Akademická angličtina. Praha: Grada Publishing, a.s., 2011. McCarthy M., O'Dell F.: English Vocabulary in Use, Upper-Intermediate. CUP, 1994. Fictumova J., Ceccarelli J., Long T.: Angličtina, konverzace pro pokročilé. Barrister and Principal, 2008. Peters S., Gráf T.: Time to practise. Polyglot, 2007. Langa L.: Communicative Commune Practice. CUP, 1095					
Course language: English language, B2 level according to CEFR					
Notes:					
Course assessment Total number of assessed students: 289					
A B C D E FX					
44.64 20.76 17.65 7.96 6.23 2.77					
Provides: Mgr. Barbara Mitríková, Mgr. Viktória Mária Slovenská					
Date of last modification: 12.02.2023					

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J. Šafár	rik University in Košice			
Faculty: Faculty of S	cience			
Course ID: CJP/ PFAJGA/07	Course name: Communicative Grammar in English			
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: cor	nd the method: ce rse-load (hours): dy period: 28 mbined, present			
Number of ECTS cro	edits: 2			
Recommended seme	ster/trimester of the course:			
Course level: I., II., N	1			
Prerequisities:				
Conditions for cours Active classroom part by given deadlines. Powerpoint presentat Final Test - end of set Final assessment = av Grading scale: A 93-	e completion: ticipation (maximum 2 absences tolerated), homework assignments completed ion of a topic related to the study field. mester, no retake verage of test and presentation. 100%, B 86-92%, C 79-85%, D 72-78%, E 65-71%, FX 64% and less			
Learning outcomes: The development of s of their communica phonological, lexical efectively use the lan level B2.	students' language skills - reading, writing, listening, speaking, improvement ative linguistic competence. Students acquire knowledge of selected and syntactic aspects, development of pragmatic competence. Students can guage for a given purpose, with focus on Academic English and English on			
Brief outline of the course: Selected aspects of English grammar and pronunciation Word formation Contrast of tenses in English The passive voice Types of Conditionals Phrasal verbs and English idioms Words order and collocations, prepositional phrases				
Recommended litera Vince M.: Macmillan McCarthy, O'Dell: Er www.linguahouse.con esllibrary.com bbclearningenglish.co ted.com/talks Course language:	a Grammar in Context, Macmillan, 2008 nglish Vocabulary in Use, CUP, 1994 m			

English language, level B2 according to CEFR.							
Notes:							
Course assessment Total number of assessed students: 432							
А	В	С	D	Е	FX		
39.81	19.91	16.2	8.1	5.79	10.19		
Provides: Mgr.	Provides: Mgr. Lenka Klimčáková						
Date of last mo	dification: 13.09	0.2022					
Approved: doc	. RNDr. Zuzana J	ešková, PhD., p	rof. Mgr. Jaroslav	v Hofierka, PhD.			

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: KGER/ NJKG/07	Course name: Communicative Grammar in German Language
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: ce rse-load (hours): dy period: 28 esent

Number of ECTS credits: 2

Recommended semester/trimester of the course:

Course level: I., II.

Prerequisities:

Conditions for course completion:

Active participation in class and completed homework assignments. Students are allowed to miss 2 classes at the most (2x90 min.). 2 control tests during the semester. Final grade will be calculated as follows: A 93-100 %, B 86-92%, C 79-85%, D 72-78%, E 65-71%, FX 64 % and less.

Learning outcomes:

The aim of the course is to identify and eliminate the most frequent grammatical errors in oral and written communication, learning language skills of listening comprehension, speaking, reading and writing, increasing students 'language competence (acquisition of selected phonological, lexical and syntactic knowledge), development of students' pragmatic competence (acquisition of the ability to express selected language functions), development of presentation skills, etc.

Brief outline of the course:

The course is aimed at practicing and consolidating knowledge of morphology and syntax of German in order to show the context in grammar as a whole. The course is intended for students who often make grammatical errors in oral as well as written communication. Through the analysis of texts, audio recordings, tests, grammar exercises, monologic and dialogical expressions of students focused on specific grammatical structures, problematic cases are solved individually and in groups. Emphasis is placed on the balanced development of grammatical thinking in the communication process, which ultimately contributes to the development of all four language skills.

Recommended literature:

Dreyer, H. – Schmitt, R.: Lehr- und Übungsbuch der deutschen Grammatik. Hueber Verlag GmbH & Co. Ismaning, 2009.

Krüger, M.: Motive Kursbuch, Lektion 1 – 30. Huebert Verlag GmbH & Co. Ismaning, 2020. Brill, L.M. – Techmer, M.: Deutsch. Großes Übungsbuch. Wortschatz. Huebert Verlag GmbH & Co. Ismaning, 2011.

Földeak, Hans: Sag's besser!. Grammatik. Arbeitsbuch für Fortgeschrittene. Huebert Verlag GmbH & Co. Ismaning, 2001.

Geiger, S. – Dinsel, S.: Deutsch Übungsbuch Grammatik A2-B2. Huebert Verlag GmbH & Co. Ismaning, 2018.

Dittelová, E. – Zavatčanová, M.: Einführung in das Studium der deutschen Fachsprache. Košice: ES UPJŠ, 2000.

Course language: German, Slovak language							
Notes:							
Course assessment Total number of assessed students: 56							
А	В	С	D	E	FX		
60.71	60.71 10.71 8.93 3.57 8.93 7.14						
Provides: Mgr. Ulrika Strömplová, PhD.							
Date of last modification: 12.07.2022							
Approved: doo	e. RNDr. Zuzana J	ešková, PhD., p	rof. Mgr. Jaroslav	Hofierka, PhD.			

University: P. J. Šafárik University in Košice							
Faculty: Faculty of So	Faculty: Faculty of Science						
Course ID: ÚGE/ KRS/08	Course name: Complex geographic characteristics of selected world regions						
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 cre	edits: 3						
Recommended semes	ster/trimester of the course: 6.						
Course level: I.							
Prerequisities:							
Conditions for course At the beginning of the they elaborate present beginning of the seme the activity at the sem of acquired knowledg reach at least 50% to of weighted average.	e completion: The semester, students choose a region from provided list. During the semester, tation reflecting formal and content requirements explained by teacher at the ster. This part constitute 50% of total total evaluation. Another 10% represents minars. Remaining 40 % of evaluation is represented by written verification ge. Evaluation of all - the presentation, activity and written verification must complete the course. To get an A grade, it is necessary to obtain at least 90% 80% to grade B, 70% to C, 60% to D, and at least 50% to grade E.						
Learning outcomes: Understanding of ca temporal context of ir	usal relations between individual geographic phenomena in spatial and individual regions; extended knowledge about selected regions.						
Brief outline of the constraints of the constraint of the constraint of the constraint of the constraints of	geologic history and structure, orography and shapes of coast, climate, biogeography, protection of nature, current landscape and its transformation, al development, population and sites, economy and integration groupings in e world.						
Recommended litera DE BLIJ, H. J. et al: 2 New York (Wiley), 52 HOBBS, J. J. 2010: F Cole), 438 p. WEIGHTMAN, B. 20 3rd edition. Hoboken BAAR, V. 2002: Náro (Ostravská univerzita BRADSHAW, W. et a (McGrawHill), 620 p.	 ture: 2013: The World Today - Concepts and Regions in Geography, 6th edition. 28 p. 28 undaments of World Regional Geography, 2nd edition. Belmont (Brooks/ 2010: Dragons and Tigers – A Geography of South, East and Southeast Asia, (Wiley), 523 p. 2010: Drahu 21. století. Emancipace nebo nacionalismus? Ostrava 2010: A Geography, 4th edition. New York 						
Course language: Slovak and English							

Notes:							
Course assessment Total number of assessed students: 507							
А	В	С	D	Е	FX		
27.22	35.5	22.68	8.88	5.13	0.59		
Provides: doc. 1	Provides: doc. Mgr. Ladislav Novotný, PhD.						
Date of last modification: 01.04.2020							
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.							

University: P. J. Šafárik University in Košice						
Faculty: Faculty of	Faculty: Faculty of Science					
Course ID: ÚFV/ POF1a/99Course name: Computational Physics I						
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: 6.						

Course level: I.

Prerequisities: ÚFV/NUM/10

Conditions for course completion:

To successfully complete the course, the student must demonstrate a sufficient degree of understanding of the principles of computer solution of some typical physical problems. The basis of continuous assessment is participation and activity in exercises and work on assignments. The course ends with a final oral exam, the completion of which is conditional on the submission of all four assignments (projects) electronically and with the attached computer program. The credit evaluation of the course takes into account the following student workload: direct teaching (2 credits) and individual work on projects (2 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%), F (0-49%).

Learning outcomes:

To teach the basic principles of computer solution of some typical physical problems. The course covers both the area of deterministic methods for solving problems by ordinary and partial differential equations as well as the area of stochastic Monte Carlo simulations and thus forms the basis for further study of more advanced computer methods contained in the follow-up course Computational Physics II.

Brief outline of the course:

- 1. Introduction to dynamical systems.
- 2. Numerical solution of systems of ordinary differential equations with initial condition.
- 3. Euler's method, convergence, error estimation and order of the method. One-step methods, Tylortype and Runge-Kuta (RK2, RK4) methods.
- 4. Multistep methods, general linear method (explicit, implicit). Methods based on numerical quadrature.
- 5. Boundary value problems for ordinary differential equations.
- 6. Numerical solution of partial differential equations (PDE). Difference methods, their consistence, convergence and stability. Elliptic PDE.
- 7. Parabolic PDE, diffusion equation. Explicit and implicit methods.

8. Introduction to the Monte Carlo method. Monte Carlo integration and application in statistical physics.

9. Basics of probability theory. Monte Carlo estimate of mean and standard deviation. Central theorem of Monte Carlo sampling.

10. Simple and importance sampling. Markov chain. Perron-Frobenius theorem. Metropolis algorithm, detailed balance condition.

11. Monte Carlo simulations of lattice spin systems - application to Ising model.

12. Statistical analysis of Monte Carlo data.

Recommended literature:

Basic literature:

POZRIKIDIS, C.: Num. Comp. in Science and Engineering, Oxford Univ. Press, 2008.

GARCIA A.L.: Numerical Methods for Physics, Prentice-Hall, 1994.

LANDAU D.P., BINDER K.: A Guide to Monte Carlo Simulations in Statistical Physics,

Cambridge Univ. Press, 5-th edition, 2021.

Other literature:

BERG, B.A.: Introduction to Markov Chain Monte Carlo Simulations and Their Statistical Analysis (http://www.worldscibooks.com/etextbook/5904/5904_intro.pdf)

JANKE, W.: Monte Carlo Simulations of Spin Systems (http://www.physik.uni-leipzig.de/~janke/ Paper/spinmc.pdf)

Course language:

Notes:

Course assessment

Total number of assessed students: 130

А	В	С	D	Е	FX	Ν	Р
30.0	18.46	12.31	15.38	16.92	2.31	0.0	4.62

Provides: prof. RNDr. Milan Žukovič, PhD.

Date of last modification: 14.09.2021

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J. Šafárik University in Košice							
Faculty: Faculty of Science							
Course ID: ÚFV/ PPFM/15	Course name: Computer-Based Physical Measurement						
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: ce rse-load (hours): dy period: 28 esent						
Number of ECTS cr	edits: 2						
Recommended seme	ster/trimester of the course: 4.						
Course level: I.							
Prerequisities:							
Conditions for cours Terms and conditions -participation in labor -active participation a -submitting all the lab Final assessment: -based on assessment Conditions for succes -participation in lesso -achieving the level h	se completion: s of assessment during the semester ratory exercises in accordance with study regulations and teacher's instructions at laboratory exercises boratory reports in accordance with teacher's instruction t during the semester ssful completion of the course: ons in accordance with the study regulations and teacher's instructions higher than 50 % in assessment during the semester and in final assessment						
Learning outcomes: By the end of the com with the help of com report about the gaine exercises to demostra	urse student is able to measure physical quantities, process and analyze data puter. He is able to interpret results, draw conclusions and elaborate formal ed resuls. He is able to explain the physical principles of conducted laboratory ate his conceptual understanding.						
Brief outline of the c The content of the c Physics I,II,III. 1. Motion in the Eart 2. Bungee jumper 3. Ideal gas behaviou 4.Molar mass of gas 5.Thermal expansion 6.Electrical resistance 7.Ohm's law for clos 8.Bulbs' behaviour in 9.Planck constant 10. Transient phenom 11.Alternating current 12. Forced oscillation	ourse involves labworks in physics aimed at selected problems of General h's homogenous gravitational field r of water e and temperature ed electric circuit n dc electric circuit mena in RC ana RL circuit at electric circuit						

Recommended literature:

CUMMINGS, Karen, LAWS, Priscilla, REDISH, Edward, COONEY, Patrick: Understanding Physics, John Wiley & Sons, 2004

Course language:

English

Notes:

Course assessment

Total number of assessed students: 44

А	В	С	D	Е	FX
72.73	9.09	18.18	0.0	0.0	0.0

Provides: doc. RNDr. Zuzana Ješková, PhD.

Date of last modification: 15.09.2021

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J.	University: P. J. Šafárik University in Košice					
Faculty: Faculty	Faculty: Faculty of Science					
Course ID: ÚG KULG/21	Course ID: ÚGE/ Course name: Cultural Geography XULG/21					
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 EC	IS credits: 4					
Recommended	semester/trimes	ster of the cours	e: 5.			
Course level: I.						
Prerequisities:						
Conditions for	course completi	on:				
Learning outco	mes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	ge:					
Notes:						
Course assessment Total number of assessed students: 9						
А	В	С	D	Е	FX	
33.33 22.22 33.33 11.11 0.0 0.0						
Provides: Mgr. Marián Kulla, PhD., doc. Mgr. Ladislav Novotný, PhD.						
Date of last modification: 27.06.2022						
Approved: doc.	Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.					
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University: P. J. Šafá	rik University in Košice					
Faculty: Faculty of S	cience					
<b>Course ID:</b> ÚGE/ KUL/12	Course name: Cultural geography					
Course type, scope a Course type: Lectur Recommended cour Per week: 2 / 1 Per Course method: pre	nd the method: re / Practice rse-load (hours): study period: 28 / 14 esent					
Number of ECTS cr	edits: 4					
Recommended seme	ster/trimester of the course: 3.					
Course level: I., II.						
Prerequisities:						
Conditions for cours	e completion:					
Learning outcomes:						
Brief outline of the c	ourse:					
Recommended litera ANDĚL. J. 1998: Ku ANDERSON, K. et a BARŠA, P. 1999: Pol BERGMAN, E. F. 19 Hall, Engewood Cliff BONNEMAISON, J. DIAMOND, J. 1997: York. DIAMOND, J. 2019: DOSTÁL, P. 1999: E UC, Geographica, XX HEŘMANOVÁ, E., O Praha: ASPI, a. s., 29 KRUPA, V., GENZO MACDONALD, F., N nakladatelství, s. r. o. MURRAY, W, E. 200 Geography. Routledg ROGERS, A. 1994: I Course language: Slovak	<ul> <li>ture:</li> <li>ltúrní geografie. UJEP Ústí nad Labem, 146 s.</li> <li>1. 2003: Handbook of cultural geography. 601 p.</li> <li>litická teorie multikulturalismu, CDK.</li> <li>'95: Human Geography. Cultures, Connections and Landscapes. Prentice 's.</li> <li>2005: Culture and Space. I. B. Tauris.</li> <li>Guns, germs and steel: the fates of human societies. Norton &amp; co., New</li> <li>Otrasy – Ako národy riešia svoje krízy. Premedia, 408 s.</li> <li>thnicity, mobilization and territory: an overview of recent experien-ces. Acta XXIV, 1, s. 45-58.</li> <li>CHROMÝ, P. a kol. 2009: Kulturní regiony a geografie kultury. 1. vyd.</li> <li>2-301.</li> <li>R, J. 1996: Jazyky sveta v priestore a čase. Veda, SAV Bratislava, 356 s.</li> <li>MASON, A. 2009: Kultúra ľudstva. Ottova encyklopédia. Ottovo Praha, 256 s.</li> <li>'6: Geographies of Globalization. Routledge Contemporary Human e Taylor &amp; Francis Group London and New York, 32 s.</li> <li>Lidé a kultúry. Nakladatelský dům Praha, 256 s.</li> </ul>					
Notes:						

Course assessment Total number of assessed students: 577							
A B C D E FX							
54.07	32.58	10.05	2.95	0.35	0.0		
Provides: Mgr. Marián Kulla, PhD., Mgr. Štefan Kolečanský, prof. Mgr. Jaroslav Hofierka, PhD.							
Date of last modification: 09.10.2020							
Approved: doc	Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.						

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
<b>Course ID:</b> ÚGE/ DTG/21	Course name: Digital technologies in geography
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: ce rse-load (hours): dy period: 28 esent
Number of ECTS cr	edits: 2
Recommended seme	ster/trimester of the course: 1.
Course level: I.	
Prerequisities:	
<b>Conditions for cours</b> Assessment is based the semester. The over evaluation. The evalu- points), C (70-79 points)	e completion: on a combination of midterm (30%) and final assessment (70%) at the end of erall evaluation is calculated as a weighted average of the final and midterm nation scheme applies to the overall evaluation: A (100-90 points), B (80-89 nts), D (60-69 points), E (50-59 points), FX (0 -49 points).
Learning outcomes: Knowledge: The stu technologies specific for and sort different professional literature Skills: The student use databases of scie modifying different t acquainted with the l knowledge of using O Competences: The stu of geography. The rest of ICT literacy. The sta	dent will gain knowledge in the field of information and communication to the study of geography and geoinformatics. The student will learn to search types of information. The acquired knowledge will be used in working with e published in scientific databases and selected geospatial databases. will learn to work with selected WebGIS portals publishing geodata and entific journals and citation manager. They will learn the basic methods of ypes of data in order to prepare them for integration into GIS. They will get icense conditions of the used software within the department. Gain advanced Office. udent will acquire basic competencies in the field of ICT needed for the study sult is the student's ability to manage the study fluently and smoothly in terms tudent is able to independently use ICT tools.
Brief outline of the c Important and usefu university for studer operating systems, da SR, Soil portal, ŠGÚ the essence of vector databases (formulas, Using MS PowerPoin	ourse: I information regarding the study, standards and services provided by the its (WiFi, information retrieval, websites, citation manager - CitacePro) ita types, file types, software used. Work with statistical data, DataCube, SO DŠ, Geoenviroportal, Geoportal and similar web applications. Explanation of and raster graphics, graphic formats and their use. Work with spreadsheet and contingency tables and graphs), advanced work and formatting in MS Word. it to create presentations and posters.
Recommended litera KAŇUK, J., 2015. Pr Prírodovedecká fakul	t <b>ure:</b> tiestorové analýzy a modelovanie. Vysokoškolské učebné texty. ta Univerzity Pavla Jozefa Šafárika v Košiciach. 114 s.

ŽITNIAK, J., 2017. Microsoft Office 2016. Podrobná uživatelská příručka. Computer Press. 464

s.

KLATKOVSKÝ, K., 2016. Word 2016 nejen pro školy. Computer Media. 124 s.

KLATKOVSKÝ, K., 2016. Powerpoint 2016 nejen pro školy. Computer Media. 80 s.

LAURENČÍK, M., 2019. Excel 2016 a 2019 - pokročilé nástroje, Grada, 256 s.

Course language:						
Notes:						
Course assessment Total number of assessed students: 82						
А	В	С	D	Е	FX	
45.12	34.15	17.07	2.44	1.22	0.0	
Provides: doc. RNDr. Ján Kaňuk, PhD., Mgr. Daniela Ujlakiová, Mgr. Ondrej Tokarčík						
Date of last modification: 27.06.2022						
Approved: doc	. RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.		

University: P. J. Šafár	ik University in Košice
Faculty: Faculty of Sc	ience
Course ID: KPPaPZ/PUDB/15	Course name: Drug Addiction Prevention in University Students
Course type, scope ar Course type: Practice Recommended cour Per week: 2 Per stud Course method: pres	nd the method: e se-load (hours): ly period: 28 sent
Number of ECTS cre	dits: 2
Recommended semes	ter/trimester of the course: 3., 5.
Course level: I.	
Prerequisities:	
<b>Conditions for course</b> 1st of the evaluation: a participation in worksl 50 - 45: A; 44 - 40: E the electronic bulletin a combined method.	e completion: active participation in the training part (30p). 2nd part of the evaluation: active hops (20p). In total, students can get 50p and the final evaluation is as follows: 3; 39-35: C; 34-30: D; 29 - 25: E 24 and less: FX. Detailed information in board of the course in AIS2. The teaching of the subject will be realized by
Learning outcomes: The student understand describe and explain the substance use. Student of substance and non- The student is also all approaches in prevent The student is able to and assume their positi	nds the principals of research data based prevention of risk behavior, can the determinants of risk behavior as well as protective and risk factors for t understands and adequately interprets the theory explaining the background substance addictions. ble to state and classify the types and forms of prevention, strategies and ion, can distinguish effective strategies from ineffective ones. adequately interpret their experience with preventive activities in the group tive effect as well as limitations and threats.
Brief outline of the co	ourse:
Recommended literat Orosová, O. a kol. (20 internetu v školskej pr Sloboda, Z., & Bukos and Practice. New Yor National and internatio	ture: 12). Základy prevencie užívania drog a problematického používania raxi. Košice: UPJŠ. ki, J. (Eds.). (2006). Handbook of Drug Abuse Prevention: Theory, Science, rk: Springer. onal scientific journals.
<b>Course language:</b> slovak	
Notes:	

Course assessment Total number of assessed students: 562							
А	В	С	D	Е	FX		
76.87	16.9	4.09	1.6	0.18	0.36		
<b>Provides:</b> prof. PhDr. Oľga Orosová, CSc., Mgr. Lucia Barbierik, PhD., Mgr. Lenka Abrinková, PhD., Mgr. Frederika Lučanská, PhD., Mgr. Viera Čurová, Mgr. Marcela Majdanová, PhD.							
Date of last modification: 24.06.2022							
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.							

University: P. J.	. Šafárik Univers	ity in Košice					
Faculty: Faculty	y of Science						
Course ID: ÚGE/ Course name: Economic geography EKG/21							
Course type, sc Course type: I Recommended Per week: 3 / 1 Course metho	ope and the met Lecture / Practice I course-load (h I Per study peri d: present	thod: cours): od: 42 / 14					
Number of EC	IS credits: 6		2				
Recommended	semester/trimes	ster of the cours	e: 3.				
Course level: 1.							
Prerequisities:							
Conditions for	course completi	on:					
Learning outco	mes:						
Brief outline of	the course:						
Recommended	literature:						
Course languag	ge:						
Notes:							
Course assessm Total number of	ent f assessed studen	ts: 41					
А	В	С	D	Е	FX		
4.88	4.88 14.63 26.83 31.71 21.95 0.0						
Provides: Mgr. Marián Kulla, PhD., doc. Mgr. Ladislav Novotný, PhD.							
Date of last mo	dification: 27.06	5.2022					
Approved: doc.	RNDr. Zuzana .	Ješková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.			

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
<b>Course ID:</b> ÚINF/ EDS/15	Course name: Educational software
Course type, scope a Course type: Practic Recommended cou Per week: 2 Per stu Course method: pre	and the method: ce rse-load (hours): ady period: 28 esent
Number of ECTS cr	edits: 2
Recommended seme	ster/trimester of the course: 5.
Course level: I.	
Prerequisities:	
Conditions for course Conditions for ongoin 1. Creation of a work 2. Creation of a mult 3. Creation of an inste 4. Creation of an inste Conditions for the fir 1. Creation and prese Conditions for succes Obtaining at least 500 Learning outcomes: Students will receive a) presentation softw conceptual maps, b) programs for the c c) simulation and mod d) selected subject-on Students present and resources and tools in	<ul> <li>a completion:</li> <li>ng evaluation:</li> <li>sheet for student (with custom graphics).</li> <li>imedia educational presentation (with pictures, animations and sounds).</li> <li>ractive educational quiz (with various types of quiz items).</li> <li>ructional educational video.</li> <li>nal evaluation:</li> <li>entation of final project on the use of educational software in education.</li> <li>ssful completion of the course:</li> <li>% of points for ongoing and final assignments.</li> <li>, resp. deepen their basic skills in working with:</li> <li>are, programs for creating and editing images, animations, diagrams, sounds,</li> <li>reation of didactic tests, questionnaires, surveys,</li> <li>deling software,</li> <li>riented educational programs,</li> <li>discuss their idea of the use of educational software and educational Internet in the selected school subject.</li> </ul>
<ul> <li>Brief outline of the c</li> <li>1. Overview of educa</li> <li>2. Creating and procemaps).</li> <li>3. Creating raster ani</li> <li>4. Creation of instruct</li> <li>5. Electronic voting</li> <li>Forms).</li> <li>6. Creation of didacti</li> <li>7. Collaborative web</li> <li>8. Online communication</li> </ul>	ourse: tional software and educational web resources and tools. essing images into teaching aids (word clouds, QR codes, diagrams, concept mations. Creating and processing sounds. tional educational video. (Polleverywhere, Plickers, Kahoot!) and questionnaire creation (Google ic tests (Google Forms, HotPotatoes). applications (mind42, miro, whiteboard, padlet). ation tools (BBB).

9. Complex online learning environments (Moodle).

- 10. Online educational projects and competitions (eTweening, WebQuest, PALMA junior).
- 11. Simulations and modelling (WolframAlpha, PhET, Geogebra). Subject-focused educational programmes.

12. Creation of educational software in Scratch environment.

### **Recommended literature:**

SOLOMON, Gwen and Lynne SCHRUM, 2014. Web 2.0 How-to for Educators. Second. International Society for Technology in Education, 314 p. ISBN 978-1564843517.

STOBAUGH, Rebecca, 2019. Fifty Strategies to Boost Cognitive Engagement: Creating a Thinking Culture in the Classroom (50 Teaching Strategies to Support Cognitive Development). Solution Tree Press, 176 p. ISBN 978-1947604773.

LEMOV, Doug, 2015. Teach Like a Champion 2. 0: 62 Techniques That Put Students on the Path to College [online]. 2nd edition. John Wiley & Sons, Incorporated, 509 p. [cited 2021-7-10]. ISBN 9781118898628. Available from: https://ebookcentral.proquest.com/lib/upjs-ebooks/ detail.action?docID=1895720

European Schoolnet: Transforming education in Europe [online]. [cited 2021-7-10]. Available from: http://www.eun.org/home

Science On Stage Europe [online]. Science on Stage Europe e.V. [cited 2021-7-10]. Available from: https://www.science-on-stage.eu/

### **Course language:**

Slovak and partly English due to selected programs and information sources

### Notes:

By default, teaching is carried out face to face. If this is not possible (eg due to a pandemic), teaching is provided at a distance through video conferencing programs and LMS.

Total number of assessed students: 77

A	В	С	D	Е	FX
68.83	15.58	9.09	0.0	6.49	0.0

Provides: doc. RNDr. Ľubomír Šnajder, PhD.

### **Date of last modification:** 01.08.2021

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
<b>Course ID:</b> ÚFV/ ELP1/01	ourse ID: ÚFV/ Course name: Electonics Practical				
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 3 Per study period: 42 Course method: present					
Number of ECTS c	redits: 3				
Recommended semester/trimester of the course: 6.					
Course level: I.					
Prerequisities: ÚFV/ELE1/07 or ÚFV/ELEM1/15					

#### Conditions for course completion:

For successful exam of the subject, the student must demonstrate sufficient understanding of selected problems from electronics. Knowledge of student will be tested by talk during practices. It is necessary to properly process the theoretical preparation of the topic for the preparation of the experiment. Subsequently analyze and interpret experimental results. Condition for obtaining credits is to perform all tasks and passing protocols from measurements. Credit assessment of the subject takes into account the following student burden: performing experimental measurements (1 credit), self-study and theoretical preparation (1 credits) and drafting protocols (1 credits). The minimum boundary for completing the subject is to obtain at least 50% of the total point evaluation, using the following evaluation scale: A (90-100%), B (80-89%), C (70-79%), D (60- 69%), E (50-59%), F (0-49%).

#### Learning outcomes:

Practical work of students in the design, construction and properties of the measurements of electronic circuits and interpretation of the results obtained to verify and consolidate the theoretical knowledge acquired in lectures on the subject Electronics.

#### Brief outline of the course:

- 1. Combinatorial logical circuits.
- 2.Logical memory circuits.
- 3. Logical sequence circuits.
- 4. Rectifiers, filters, stabilizers.
- 5. Generators of harmonic signals.
- 6. Operational amplifiers and operational network interfaces.
- 7. Digital-to-analog converters.
- 8. Analog-to-digital converters.
- 9. Reserve.

#### **Recommended literature:**

1. Delaney C.F.G.: Electronics for the Physicist with Aplications. John Willey & Sons, New York, 1980.

2. Zbar P.B., Malvino A.P., Miller M.A.: Basic Electronics: a Text-Lab Manual. Macmillan/ McGraw – Hill, New York, 1994.

### **Course language:**

- 1. Slovak
- 2. English

### Notes:

### Course assessment

Total number of assessed students: 42

А	В	С	D	Е	FX	
92.86	0.0	2.38	4.76	0.0	0.0	
Provides: RNDr. Vladimír Tkáč, PhD.						
Date of last modification: 20.09.2021						

Faculty: Faculty of Science         Course ID: ÚFV/ ELEM1/15       Course name: Electronics         Course type, scope and the method: 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: 5.         Course level: I.         Prerequisities: ÚFV/VF1b/03 or ÚFV/VFM1b/15         Conditions for course completion: Exam         Exam         Learning outcomes: To explain physical principles of classical electronic components and systems and technologies of their realization. To perform analysis of properties and functions of basic electronic elements, electronic circuits and information transmission and processing systems. To introduce student into basic elements and devices in area of nanoelectonics and to explain methods of their fabrication cod activity to efficie for discinction interviewed for their fabrication
Course ID: ÚFV/ ELEM1/15       Course name: Electronics         Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 3 Per study period: 42 Course method: present       Per week: 3 Per study period: 42 Course method: present         Number of ECTS credits: 3       Recommended semester/trimester of the course: 5.         Course level: I.       Pereequisities: ÚFV/VF1b/03 or ÚFV/VFM1b/15         Conditions for course completion: Exam       Exam         Learning outcomes: To explain physical principles of classical electronic components and systems and technologies of their realization. To perform analysis of properties and functions of basic electronic elements, electronic circuits and information transmission and processing systems. To introduce student into basic elements and devices in area of nanoelectonics and to explain methods of their fabrication
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: 5. Course level: I. Prerequisities: ÚFV/VF1b/03 or ÚFV/VFM1b/15 Conditions for course completion: Exam Learning outcomes: To explain physical principles of classical electronic components and systems and technologies of their realization. To perform analysis of properties and functions of basic electronic elements, electronic circuits and information transmission and processing systems. To introduce student into basic elements and devices in area of nanoelectonics and to explain methods of their fabrication read existing effective of the store of the store of the store of their fabrication conductions of their fabrication.
Number of ECTS credits: 3         Recommended semester/trimester of the course: 5.         Course level: I.         Prerequisities: ÚFV/VF1b/03 or ÚFV/VFM1b/15         Conditions for course completion:         Exam         Learning outcomes:         To explain physical principles of classical electronic components and systems and technologies of their realization. To perform analysis of properties and functions of basic electronic elements, electronic circuits and information transmission and processing systems. To introduce student into basic elements and devices in area of nanoelectonics and to explain methods of their fabrication
Recommended semester/trimester of the course: 5.         Course level: I.         Prerequisities: ÚFV/VF1b/03 or ÚFV/VFM1b/15         Conditions for course completion:         Exam         Learning outcomes:         To explain physical principles of classical electronic components and systems and technologies of their realization. To perform analysis of properties and functions of basic electronic elements, electronic circuits and information transmission and processing systems. To introduce student into basic elements and devices in area of nanoelectonics and to explain methods of their fabrication
Course level: I. Prerequisities: ÚFV/VF1b/03 or ÚFV/VFM1b/15 Conditions for course completion: Exam Learning outcomes: To explain physical principles of classical electronic components and systems and technologies of their realization. To perform analysis of properties and functions of basic electronic elements, electronic circuits and information transmission and processing systems. To introduce student into basic elements and devices in area of nanoelectonics and to explain methods of their fabrication and minimize of their function interview.
Prerequisities: ÚFV/VF1b/03 or ÚFV/VFM1b/15 Conditions for course completion: Exam Learning outcomes: To explain physical principles of classical electronic components and systems and technologies of their realization. To perform analysis of properties and functions of basic electronic elements, electronic circuits and information transmission and processing systems. To introduce student into basic elements and devices in area of nanoelectonics and to explain methods of their fabrication
Conditions for course completion: Exam Learning outcomes: To explain physical principles of classical electronic components and systems and technologies of their realization. To perform analysis of properties and functions of basic electronic elements, electronic circuits and information transmission and processing systems. To introduce student into basic elements and devices in area of nanoelectonics and to explain methods of their fabrication
<b>Learning outcomes:</b> To explain physical principles of classical electronic components and systems and technologies of their realization. To perform analysis of properties and functions of basic electronic elements, electronic circuits and information transmission and processing systems. To introduce student into basic elements and devices in area of nanoelectonics and to explain methods of their fabrication
and principles of their functioning.
<ul> <li>Brief outline of the course:</li> <li>1. Introduction to electronics: Basic components of electronic circuits, basic electrical laws</li> <li>2. Passive components, basic properties of semiconductors</li> <li>3. Semiconductors without PN junction, components with PN junction</li> <li>4. Semiconductors with PN junction</li> <li>5. Transistor phenomenon, transistor</li> <li>6. Electronic circuit with transistor</li> <li>7. Operational amplifiers</li> <li>8. Sources and generators</li> <li>9. Two-value logic algebra, combinational logic circuits</li> <li>10. Digital memory circuits</li> <li>11. Sequential logic circuits</li> <li>12. Digital-analog converters, analog-digital converters</li> </ul>
<ul> <li>Recommended literature:</li> <li>1. Brown P.B., Frantz G.N., Moraff H.: Electronics for the Modern Scientist. Elsevier, 1982.</li> <li>2. Delaney C.F.G.: Electronics for the Physicist with Aplications. John Willey &amp; Sons, 1980.</li> <li>3. Wolt E. L.: Quantum Nanoelectronics, An introduction to electronic nanotechnology and quantum computing, Wiley-VCh, 2009</li> </ul>
Course language: Slovak
Notes:

Course assessment Total number of assessed students: 169							
A B C D E FX							
23.67	24.85	28.4	11.24	5.33	6.51		
Provides: RNDr. Vladimír Tkáč, PhD.							
Date of last modification: 02.09.2021							
Approved: doc	Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.						

University: P. J. Šafá	rik University in Košice						
Faculty: Faculty of Science							
Course ID: CJP/ PFAJ4/07	Course name: English Language of Natural Science						
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: ce rse-load (hours): dy period: 28 esent						
Number of ECTS cr	edits: 2						
Recommended seme	ster/trimester of the course: 4.						
Course level: I.							
Prerequisities:							
Conditions for cours Active participation i 2 classes at the most Continuous assessme 1 credit test taken pre 1 project (quiz on the 5 LMS quizzes (25% In order to be admitte assessment The exam test results represent the other 50 The final grade for th A 93-100, B 86-92, C Learning outcomes: Enhancement of stude in English for specifie Students obtain know English, improve thei purpose, and acquire	e completion: n class and completed homework assignments. Students are allowed to miss nt: sumably in weeks 6/7 topic of the student's field of study) 25% of the continuous assessment of the continuous assessment) ed to the final exam, a student has to score at least 65 % from the continuous represent 50% of the final grade for the course, continuous assessment results 0% of the final grade. e course will be calculated as follows: 2 79-85, D 72-78, E 65-71, FX 64 and less. ents' language skills (speaking, writing, reading and listening comprehension) c and academic purposes and development of students' linguistic competence. weldge of selected phonological, lexical and syntactic aspects of professional r pragmatic competence - students can effectively use the language for a given presentation skills at B2 level (CEFR) with focus on terminology of natural						
Brief outline of the c	 011rse:						
<ol> <li>Introduction to stud</li> <li>Selected aspects of</li> <li>Talking about acad</li> <li>Discussing science</li> <li>Defining scientific</li> <li>Expressing cause a</li> <li>Describing structure</li> <li>Explaining process</li> <li>Comparing objects</li> </ol>	dying language scientific language lemic study terminology and concepts and effect res ses s, structures and concepts						

### 10. Talking about problem and solution

- 11. Referencing authors
- 12. Giving examples
- 13. Visual aids and numbers
- 14. Referencing time and place

Presentation topics related to students' study fields.

### **Recommended literature:**

lms.upjs.sk - e-kurz Odborný anglický jazyk pre prírodné vedy.

Redman, S.: English Vocabulary in Use, Pre-intermetdiate, Intermediate. Cambridge University Press, 2003.

Armer, T.: Cambridge English for Scientists. CUP, 2011.

Wharton J.: Academic Encounters. The Natural World. CUP, 2009.

P. Fitzgerald : English for ICT studies. Garnet Publishing, 2011.

https://worldservice/learningenglish, https://spectator.sme.sk

www.isllibrary.com

linguahouse.com

### **Course language:**

English, level B2 (CEFR)

#### Notes:

#### **Course assessment**

Total number of assessed students: 3056

А	В	С	D	Е	FX	
38.29	26.18	16.46	9.55	7.46	2.06	
Drovidos: Mar Lanka Klimčáková, Mar Viktória Mária Slovanská						

Provides: Mgr. Lenka Klimčáková, Mgr. Viktória Mária Slovenská

**Date of last modification:** 05.02.2023

University: P. J.	. Šafárik Univers	ity in Košice						
Faculty: Faculty of Science								
Course ID: ÚGE/ Course name: Environmental Geology ENG1/21								
Course type, sc Course type: I Recommended Per week: 1 / 1 Course metho	ope and the me Lecture / Practice I course-load (h I Per study peri d: present	thod: c ours): od: 14 / 14						
Number of EC	<b>IS credits:</b> 3							
Recommended	semester/trimes	ster of the cours	e: 3.					
<b>Course level:</b> I.	, II.							
Prerequisities:								
Conditions for	course completi	on:						
Learning outco	mes:							
Brief outline of	the course:							
Recommended	literature:							
Course languag	ge:							
Notes:								
Course assessm Total number of	<b>Course assessment</b> Total number of assessed students: 0							
А	В	С	D	Е	FX			
0.0	0.0 0.0 0.0 0.0 0.0 0.0							
Provides: doc. Ing. Katarína Bónová, PhD.								
Date of last mo	dification: 27.06	5.2022						
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.								

University: P. J.	Šafárik Univers	ity in Košice						
Faculty: Faculty	y of Science							
Course ID: ÚG MHG1/07	rse ID: ÚGE/ Course name: Fieldwork in Human Geography 51/07							
Course type, sc Course type: H Recommended Per week: Per Course metho	ope and the met Practice I course-load (h study period: 4 d: present	thod: ours): 4d						
Number of EC	<b>FS credits:</b> 3							
Recommended	semester/trimes	ster of the cours	<b>e:</b> 6.					
Course level: I.								
Prerequisities:								
Conditions for	course completi	on:						
Learning outco	mes:							
Brief outline of	the course:							
Recommended	literature:							
Course languag	ge:							
Notes:								
Course assessm Total number of	ent f assessed studen	ts: 572						
А	В	С	D	Е	FX			
93.71	2.27	1.57	1.4	0.87	0.17			
<b>Provides:</b> RND: Dická, PhD.	r. Stela Csachová	i, PhD., Mgr. Ma	rián Kulla, PhD.	, RNDr. Janetta N	Nestorová-			
Date of last mo	dification: 31.03	3.2020						
Approved: doc.	RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jaroslav	/ Hofierka, PhD.				

University: P. J.	. Šafárik Univers	sity in Košice						
Faculty: Faculty	y of Science							
<b>Course ID:</b> ÚG HYP/15	Course ID: ÚGE/ IYP/15Course name: Fieldwork in Hydrology							
Course type, sc Course type: I Recommended Per week: 2 Pe Course metho	ope and the me Practice d course-load (h er study period: d: present	thod: ours): 28						
Number of EC	<b>IS credits:</b> 3							
Recommended	semester/trime	ster of the cours	<b>e:</b> 4.					
<b>Course level:</b> I.								
Prerequisities:								
Conditions for	course completi	ion:						
Learning outco	omes:							
Brief outline of	the course:							
Recommended	literature:							
Course languag	ge:							
Notes:								
Course assessment Total number of assessed students: 80								
А	В	С	D	Е	FX			
93.75	93.75 5.0 0.0 1.25 0.0 0.0							
Provides: RNDr. Dušan Barabas, CSc.								
Date of last mo	Date of last modification: 27.06.2022							
Approved: doc.	Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.							

University: P. J. Šafárik University in Košice							
Faculty: Faculty of Science							
Course ID: ÚGE/ GEP2/18Course name: Fundamentals of Geology for Geographers							
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: 6							
Recommended semester/trimester of the course: 1.							
Course level: I.							
Prerequisities:							
Conditions for course completion:							
Learning outcomes:							
<b>Brief outline of the course:</b> Courses have following objectives: firstly, to introduce the current theories of processes which occur in the Earth (global tectonics, species of magmatism), secondly, to describe the rock-forming minerals, taxology of intrusive rocks, taxology of sedimentary rocks and rocks which had overcame metamorphosis, basics of the regional geology of Slovakia, basics of the historical geology and paleontology							
Recommended literature:							
Course language:							
Notes:							
Course assessment Total number of assessed students: 1159							
A B C D E FX							
7.85 16.91 32.36 26.83 10.44 5.61							
Provides: doc. Ing. Katarína Bónová, PhD., Ing. Ján Bóna							
Date of last modification: 30.09.2021							
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.							

University: P. J. Šafa	árik University in Košice							
Faculty: Faculty of Science								
<b>Course ID:</b> ÚFV/ VBFM1/15	Course name: General Biophysics I							
Course type, scope a Course type: Lectu Recommended cou Per week: 3 Per stu Course method: pr	and the method: are arse-load (hours): ady period: 42 aresent							
Number of ECTS cr	redits: 3							
Recommended sem	ester/trimester of the course: 3.							
Course level: I.								
Prerequisities:								
<b>Conditions for cour</b> Exam. During an exam, a st Biophysics which ar	se completion: tudent should be able to demonstrate his/her knowledge from the parts of the described in the brief outline of the course.							
Learning outcomes: To provide informat emphasis will be give of the most importan the thermodynamics	ion about the object, significance and role of biophysics in science. The main en on the understanding of the principles determining the structure and function nt biological structures (nucleis acids, proteins, biomembranes) as well as on and kinetics of selected chemical and biophysical processes.							
Week 1 Areas of interest of the Characterization of r disciplines related to Week 2 Intra-molecular and Van der Waals forces in biological macrom form for the potentia in biopolymers (prot Week 3 Thermodynamics in 1st law of thermodyn capacity. Examples of	<ul> <li>biophysics and its importance and position in science. Structure of biophysics. nolecular, cellular, medical, environmental and radiation biophysics. Scientific biophysics. The future of biophysics.</li> <li>intermolecular interactions. Covalent bonds. Coulomb (ionic) interactions. s. Lennard - Jones potential. Hydrogen bonds. The role of hydrogen bonds nolecules. Hydrophobic interactions. Hydrating forces. Empirical analytical al energy of intramolecular interactions. Stabilizing non-covalent interactions teins, nucleic acids, biological membranes).</li> <li>biological systems. Definition of thermodynamics. Thermodynamic system. namics (law of conservation of energy). Internal energy and enthalpy. Heat of the use of the study of enthalpy change in biological processes. 2nd law of</li> </ul>							
Dependence of Gibb energy on pressure. chemical reaction. In Calorimetric and van Week 4	os energy on temperature - Gibbs - Helmoltz equation. Dependence of Gibbs Chemical potential. Chemical potential in liquids. Equilibrium constant of influence of temperature on the equilibrium constant - van't Hoff's equation. n't Hoff enthalpy of protein and nucleic acid denaturation.							

Molecular associations. Examples of molecular associations in biological systems. Dissociation and association equilibrium constants. Determination of equilibrium constants of ligand macromolecule interactions. Langmuir isotherm. Graphical analysis of equilibrium binding data. Multiple independent binding sites. Ligand-macromolecule binding cooperativity. Cooperativity simultaneous ligand binding, Hill's equation. Cooperativity - gradual binding of ligands. Allosteric interactions.

Week 5

Kinetics of biological and physico-chemical processes. Importance of the study of the kinetics of chemical processes. Rates of chemical reactions. Rate constants and rate law of chemical reactions. Order of chemical reaction. First order chemical reactions. Second order chemical reactions. Consecutive reactions - the rate determining step of the reactions. Reverse chemical reactions. Relaxation processes. Temperature dependence of rate constants - Arrhenius equation. Experimental techniques for determining the rate of chemical reactions.

Week 6

Physical kinetics. Macroscopic diffusion. 1st Fick's law. 2nd Fick's law - diffusion equation. Solutions of the diffusion equation for specific cases. Influence of external forces on diffusion processes. Einstein - Smoluchowski equation. Stokes' law. Kinetics of photophysical and photochemical processes. Jablonski diagram. Quantum yields of photophysical processes. Quenching of the excited state of molecules by external factors. Fluorescence quenching. Stern -Volmer equation. Förster resonant energy transfer.

Week 7

Proteins. Functions and significance of proteins. Chemical structure and properties of amino acids. Peptide bond. Polypeptide chain. Protein structures. Relationship between individual structures. Ramachandra map. Protein solubility. Stability of protein structure. Protein denaturation. Thermal denaturation. Calorimetric and van't Hoff enthalpy of denaturation. Chemical denaturation. Molten - globular state of proteins. Protein folding. Levinthal paradox. Physiological consequences of incorrectly folded and aggregated proteins.

Week 8

Nucleic acids. Nucleic acid building blocks (nitrogenous bases, ribose, deoxyribose, phosphoric acid). Chemical structures of nucleotides. Primary and secondary structure of nucleic acids. Polynucleotide strand. Complementarity of bases in DNA. DNA conformations. Circular DNA. RNA structures. Functions of individual RNAs. Forces determining the structure and conformation of nucleic acids. DNA denaturation and renaturation.

Week 9

Biological membranes. Chemical composition of biological membranes. Lipids, cholesterol. Lipid representation in membranes. Membrane proteins. Micelles and liposomes. Structure of biological membranes. Liquid mosaic model. Phase transition in the membrane. Interactions between the lipid and protein part of the biological membrane. Transport of molecules across membranes. Membrane channels. Membrane transporters. Energetics of membrane transport. Nernst potential. Donnan's equilibrium.

Week 10

Biophysical bases of imaging examination methods. Basic principles of bio-imaging. Ultrasound diagnostic methods. Optical imaging methods. Luminescence microscopy. X-ray diagnostic technique. Computed tomography (CT). Principles of magnetic resonance. Magnetic resonance imaging.

Week 11

Biophysical bases of some treatment methods. Photodynamic therapy. Molecular mechanisms of photodynamic action. Biological response to photodynamic action. Photosensitizers. Singlet oxygen. Light sources in photodynamic therapy. Drug transport systems.

Week 12

Radiation and environmental biophysics. Radiobiology. Radiation protection. Effects of physicochemical stimuli on biological organisms (pressure, temperature, humidity). Influence of electromagnetic field on biological systems. Interaction of ionizing and non - ionizing radiation with biological systems.

### **Recommended literature:**

1. R. Glaser. Biophysics (2nd Edition), Springer-Verlach Berlin, 2012.

2. M.B. Jackson. Molecular and Cellular Biophysics, Cambridge University Press, 2006.

3. M. Daune. Molecular biophysics (Structures in motion), Oxford University Press, 2004.

4. J. P. Allen. Biophysical Chemistry, Wiley-Blackwell, 2008.

5. J.A. Tuszynski. Molecelar and Cellular Biophysics, Chapman & Hall/CRC, 2008.

6. D.J. Dowsett, P.A. Kenny and R.E. Johnston. The Physics of Diagnostic Imaging, Hodder Arnold, 2006.

7. P. Nelson. Biological Physics.W.H. Freeman and Company, 2008.

8. G. S. Campbell and J. M. Norman. Introduction to Environmental Biophysics (2nd Edition). Springer Science, 1998.

9. R. Splinter (Ed.). Handbook of Physics in Medicine and Biology. CRC Press, Taylor & Francis Group, 2010.

10. R.K. Hoobbie and B.J. Roth. Intermediate Physics for Medicine and Biology (4th Edition), Springer Science, 2007.

### Course language:

English language

### Notes:

Course assessment								
Total number of assessed students: 12								
A	B C D E FX							
16.67 58.33 25.0 0.0 0.0 0.0								
Provides: doc. Mgr. Daniel Jancura, PhD.								

### Date of last modification: 17.09.2021

University: P. J. Šafá	rik University in Košice							
Faculty: Faculty of Science								
Course ID: ÚFV/ VFM1a/15	Course name: General Physics I							
Course type, scope a Course type: Lectur Recommended cour Per week: 4 / 2 Per Course method: pre	nd the method: re / Practice rse-load (hours): study period: 56 / 28 esent							
Number of ECTS cr	edits: 6							
Recommended seme	ster/trimester of the course: 1.							
Course level: I.								
Prerequisities:								
Conditions for course Terms and conditions -participation in classe -active participation a -submitting all the as -tests during the seme -project group work a Final assessment: -final oral examination Conditions for succes -participation in less -achieving the level h Learning outcomes: By the end of the co physics and thermod course content and ap	e completion: a of assessment during the semester ses in accordance with study regulations and teacher's instructions at seminars and exercises signments in accordance with teacher's instruction ester and its successful presentation and defence on ssful completion of the course: ons in accordance with the study regulations and teacher's instructions tigher than 50 % in assessment during the semester and in final assessment urse student masters basic knowledge connected with mechanics, molecular ynamics. Student will be able to solve various problems connected with the oply gained knowledge in different situations.							
Brief outline of the c Basic knowledge of t principle of relativity The motio of rigid be gases. Kinetic theory Molecular phenomen	ourse: he calculus, vector algebra. Standards and units. Kinematics. Dynamics. The in the classical mechanics. Gravitation. Mechanics of many-particle systems. odies. Deformation, elasticity. Mechanics of fluids and gases. Laws of ideal t. The thermodynamic laws. Statistical character of the second law. Entropy. a in liquids and solids. Phase transitions.							
<b>Recommended litera</b> CUMMINGS, Karen Physics, John Wiley	nture: , LAWS, Priscilla, REDISH, Edward, COONEY, Patrick: Understanding & Sons, 2004							
Course language: English								
Notes:								

<b>Course assessn</b> Total number o	nent f assessed studen	ts: 212					
A B C D E FX							
27.83	16.51	19.81	13.68	18.87	3.3		
Provides: doc. RNDr. Zuzana Ješková, PhD.							
Date of last modification: 15.09.2021							
Approved: doc	. RNDr. Zuzana J	ešková, PhD., pr	of. Mgr. Jaroslav	v Hofierka, PhD.			

University: P. J.	Šafárik Univers	ity in Košice						
Faculty: Faculty	of Science							
Course ID: ÚFV VFM1b/15	Course ID: ÚFV/ VFM1b/15Course name: General Physics II							
Course type, sco Course type: L Recommended Per week: 4 / 2 Course method	ope and the me ecture / Practice course-load (h Per study peri l: present	thod: ; ours): od: 56 / 28						
Number of ECT	S credits: 6							
Recommended s	semester/trimes	ster of the cours	<b>e:</b> 2.					
Course level: I.								
Prerequisities: U	ÚFV/VF1a/12 or	r ÚFV/VFM1a/1	5					
<b>Conditions for c</b> Two written dist Distance oral ex	course completi ance tests. am.	on:						
<b>Learning outcon</b> To obtain a gene of this subject.	<b>nes:</b> ral view on basi	c electric magnet	ic phenomena ar	nd ability to solve	basic problems			
Brief outline of Electric field in steady current. O Magnetic field in steady electric fi with ac current. Magnetic proper Magnetic orderin	the course: the free space. V Current in electron the free space. eld. Electromag Multiphase AC ties of the subst ng. Ferromagne	Work of the force olytes, semicondu The interaction of netic induction. I current. Rotating ancies. Magnetic tism.	es in the electros actors, gasses an of moving charge Energy of magnet magnetic field. polarization. Di	tatic field. Electro d vacuum. Therm es with the electri etic field. AC cur Electric effects in amagnetism and	ostatic field and noelctric effects. c current. Quasi rent and circuits the substances. paramagnetism,			
Recommended I I. S. Grant, W.R	<b>iterature:</b> . Phillips, Electr	omagnetism, Joh	n Wiley&Sons,	Ltd, England, 19	90			
<b>Course languag</b> english	e:							
Notes:								
Course assessme Total number of	ent assessed studen	ts: 45						
A	В	С	D	Е	FX			
44.44	17.78	17.78	4.44	2.22	13.33			
Provides: prof. I Erik Čižmár, PhI Date of last mod	RNDr. Peter Kol D. lification: 29.03	lár, DrSc., doc. F 3.2020	RNDr. Adriana Z	Zeleňáková, PhD.,	, doc. RNDr.			

University: P. J. Šafárik University in Košice								
Faculty: Faculty of Science								
Course ID: ÚF VFM1c/15	ID: ÚFV/Course name: General Physics III15							
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 4 / 2 Per study period: 56 / 28 Course method: present								
Number of EC	<b>FS</b> credit	s: 6						
Recommended	semester	/trimes	ster of the course	e: 3.				
Course level: I.								
Prerequisities:	ÚFV/VF1	b/03 or	r ÚFV/VFM1b/1	5				
<b>Conditions for</b> Written test (2x	<b>course co</b> ) from ser	<b>mpleti</b> ninars (	on: during the semest	ter. Oral examin	nation.			
Learning outco The objective is	mes: to acqua	int the s	students with the	basis of oscilat	ions, waves and o	ptics.		
Undamped osc Fourier transfor Huyghens princ Geometrical op Light as electr Photon's theory	ilations, 1 mation, F ciple. Refl tics. Mirro omagnetic of light. I	Mathem Forced of lection, prs, lens c wave Law of	natical, Physical oscilations. Wave difraction. Dopp s. Fotometry. e. Dispersion, at emision and abso	and Torsional es, their generat bler effect. Wav psorption, inter prption, Planck'	pendulum, Damp tion, waves equation yes speed in mater ference, difraction s law of radiation.	ped oscilations, on.Interference. rials. Acoustics. n, polarization. Lasers.		
<ul> <li>Recommended literature:</li> <li>1. A. Hlavička et al., Fyzika pro pedagogické fakulty, SPN, 1971</li> <li>2. R.P. Feynman et al., Feynmanove prednášky z Fyziky I,II,III, ALFA, 1985</li> <li>3. D. Halliday et al., Fyzika-Vysokoškolská učebnice obecné fyziky, VUTIUM, 2010</li> <li>4. J. Fuka, B. Havelka, Optika a atómová fyzika, SPN, 1961</li> <li>5. A. Štrba, Všeobecná Evzika 3 – Optika, ALFA, 1979</li> </ul>								
Course language: slovak								
Notes:								
Course assessment Total number of assessed students: 75								
А	В		С	D	Е	FX		
36.0	36.0         18.67         28.0         10.67         6.67         0.0							
Provides: doc. 1	RNDr. Ján	Füzer,	PhD.		1	1		
Date of last mo	dification	: 28.09	0.2021					

University: P. J. Šafári	k University in Košice
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Faculty: Faculty of Science

Course ID: ÚFV/	Course name: General Physics IV
VFM1d/15	

# Course type, scope and the method:

**Course type:** Lecture / Practice

**Recommended course-load (hours): Per week:** 4 / 2 **Per study period:** 56 / 28

Course method: present

#### **Number of ECTS credits:** 6

#### Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities: ÚFV/VF1c/10 or ÚFV/VF1c/12 or ÚFV/VFM1c/15

### **Conditions for course completion:**

- active participation in lectures and excersises

- submission of solved tasks

- 2x test
- an exam

Credit evaluation of the subject: direct teaching and consultations (2credits), self-study (1credit), practical activities- solved tasks (1 credit), evaluation (2 credits), a total of 6 credits.

Minimum limit for completion of the course is to obtain at least 51% of the total evaluation.

#### Learning outcomes:

Basic knowledge about the atomic structure and spectra and nuclei, and elementary particles. Basic experimental methods in nuclear physics and passage of nuclear radiation through media.

#### Brief outline of the course:

1.-6. week Atomic Physics - A.Kravčáková (P):

Corpuscular-wave dualism: De Broglie waves. Experimental confirmation of de Broglie's hypothesis. Uncertainty principle.

Atom structure: Atomic hypothesis. Rutherford's experiment. Bohr model of the atom.

Hydrogen radiation spectra. Combination principle. Quantum mechanical description of a hydrogen atom.

Electron shell: Spectra of hydrogen type atoms. Experimental verification of the existence of discrete levels of atoms (Franck-Hertz experiment). Angulat momentum of electron motion. Stern-Gerlach experiment. Quantum states of electrons. Atoms with more electrons. Alkali metal spectra. Total angular momentum of an atom. Magnetic momentum of an atom. An atom in an external magnetic and electric field. Zeeman's phenomenon. Selection rules. Pauli's principle. Periodic table of elements. X-ray spectra.

Molecules: Ion and covalent coupling, spectra of molecules.

7.-12. week Nuclear Physics - J.Vrláková (P):

Basic characteristics of atomic nuclei: Mass and electric charge. Radius of the atomic nucleus. Binding energy. Spin and magnetic momentum of the nucleus. Quadrupole momentum. Parity.

Nuclear forces and models of atomic nuclei: Properties of nuclear forces. Meson theory of nuclear forces. Models of atomic nuclei (droplet, layer and generalized model).

Radioactive radiation: Basic laws of radioactive decay. Law of decay. Alpha decay. Beta decay. Processes taking place in the nucleus during beta conversion. Neutrino existence hypothesis. Fermi's theory. Internal conversion. Gamma radiation.

Nuclear reactions: Basic terms and definitions. Classification of nuclear reactions. Conservation laws. Effective cross section. Mechanisms of nuclear reactions. Basic types of reactions. Breit-Wigner formula. Reactions with neutrons. Fission of atomic nuclei. Mechanism of fission. Nuclear reactor. Thermonuclear reactions.

Week 13 Subnuclear physics - A.Kravčáková (P):

Elementary particles: The concept of an elementary particle. Basic characteristics of particles. Conservation laws. Types of interactions. Antiparticles. Classification of elementary particles. Strange particles. Resonances. Quark model of hadrons.

Cosmic radiation: Primary and secondary components. Elementary particles and cosmology.

Week 14 Experimental methods - A.Kravčáková (P):

Passage of radiation through matter: The passage of heavy charged particles, electrons and gamma radiation through the matter.

Detectors: Basic characteristics of detectors. Volt-ampere characteristic. Gas detectors. Ionization chambers and Geiger-Müller computer. Scintillation, Cherenkov and semiconductor detectors. Track detectors.

Particle accelerators: Linear accelerator. Cyclic accelerators. Colliders.

### **Recommended literature:**

1. Beiser A., Úvod do moderní fyziky, Praha, 1975.

2. Úlehla I., Suk M., Trka Z.: Atómy, jádra, částice, Praha, 1990.

3. Síleš E., Martinská G.: Všeobecná fyzika IV, skriptá PF UPJŠ, 2. vydanie, Košice, 1992.

4. Vrláková J., Kravčáková A., Vokál S.: Zbierka príkladov z atómovej a jadrovej fyziky, skriptá PF UPJŠ, Košice, 2016.

5. Hajko V. and team of authors, Physics in experiments, Bratislava, 1997.

6. Nosek D., Jádra a částice (Řešené příklady), Matfyzpress, MFF UK, Praha 2005,

7. Kravčáková A., Vokál S., Vrláková J., Všeobecná fyzika IV, 1.časť Atómová fyzika, skriptá PF UPJŠ, Košice, 2020.

8. Yang F., Hamilton J.H., Modern Atomic and Nuclear Physics, WSC Singapore, 2010.

### **Course language:**

slovak and english

Notes:

### **Course assessment**

Total number of assessed students: 34

А	В	С	D	Е	FX
58.82	11.76	20.59	5.88	2.94	0.0

**Provides:** doc. RNDr. Adela Kravčáková, PhD., doc. RNDr. Janka Vrláková, PhD., RNDr. Zuzana Paulínyová, PhD.

### Date of last modification: 16.09.2021

University: P. J. Šafárik University in Košice							
Faculty: Faculty	Faculty: Faculty of Science						
Course ID: ÚGE GEE2/07	E/ Course name: Geoecology						
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 ECT	S credits: 5						
Recommended se	emester/trimes	ster of the cours	e:				
Course level: I.							
Prerequisities:							
Conditions for co	ourse completi	on:					
Learning outcon	nes:						
<ul> <li>Focus will be put on the development of this discipline, different dimensions of the physical – geographic complexes, regularities of the space differentiation of the physical – geographic sphere, evolution, and dynamics of the physical – geographic complexes. Synthesis of the principles of landscape and landscape-ecological planning.</li> <li><b>Recommended literature:</b> BEDRNA, Z., a kol. 1992: Analýza a čiastkové syntézy zložiek krajinnej štruktúry. Bratislava. Učebné texty, 95 s MIČIAN, Ľ., ZATKALÍK, F. 1984: Náuka o krajine a starostlivosť o životné prostredie. UK Bratislava skriptá,137s. MIČIAN, Ľ. 1989: Pokus o novú definíciu krajinnej ekológie. Ekológia (ČSFR), 3,1,Veda, Bratislava, s. 7-12. MIČIAN, Ľ. 2008: Všeobecná geoekológia Bratislava: Geo-grafika, 88 s. – Skriptá</li></ul>							
Course language	2:						
Notes:	Notes:						
Course assessment Total number of assessed students: 682							
A	B C D E FX						
5.43 12.61 20.82 24.05 34.75 2.35							
Provides: RNDr.	Provides: RNDr. Dušan Barabas, CSc., Mgr. Imrich Sládek, PhD., Mgr. Ján Šašak, PhD.						
Date of last modification: 19.08.2020							
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.							

University: P. J. Šafárik University in Košice						
Faculty: Faculty of S	Science					
<b>Course ID:</b> ÚGE/ GIS/15	GE/ Course name: Geographic Information Systems					
Course type, scope a Course type: Lectu Recommended cou Per week: 2 / 2 Per Course method: pr	ind the method: re / Practice rse-load (hours): study period: 28 / 28 esent					
Number of ECTS ci	redits: 6					
Recommended seme	ester/trimester of the course: 3., 5.					
Course level: I., II.						

### Prerequisities:

#### **Conditions for course completion:**

The assessment is a combination of continual control during the practicals and the final exam in the examination period. The continual assessment is performed during the semester and it involves 2 written tests in the mid-term and end of the semester and a project report generated according to the assignment and practical skills acquired during the practicals. The student can proceed to the final exam in case he or she acquired at least 50 points of 100 in all elements of the the continual assessment. The final assessment mark is based on the average number points received in the mid-term test, project report, practicals assessment, and final exam. The final exam is a written test comprising 3-4 questions. The credits are given in case the student had reached at least the E mark in continual assessment and final exam. The following marking scheme is applied in the assessment: A (100-90 points), B (80-89 points), C (70-79 points), D (60-69 points), E (50-59 points), FX (0-49 points).

#### Learning outcomes:

The students gain knowledge on the intermediate levele in the theory of geoinformation science, GIS, and Remote Sensing, GIS data models, methods of data processing and spatial analysis. They gain practical skills in processing of geographic data, management, analysis, and visualisation

of the geographic data in a GIS project.

Students acquire competence in defining a GIS project, suitabla data models, methods of data acquisition, data processing, analysis and visualisation, presentation skills and skills in team work.

#### Brief outline of the course:

The course is focused on the following topics: geoinformatics as a scientific discipline, components of geographic information system, digital landscape representation and data models, GIS standards for coordinate systems and transformations, collection of geographic data for GIS (GNSS, photogrammetry, multispectral satellite imagery, lidar, radar), data management in GIS, attribute and spatial demands, layer overlap, map algebra, spatial prediction, quality and uncertainty of geographic data, GIS web solutions, legislative aspects in GIS, GIS applications in practice.

Exercises are focused on working in ArcGIS Pro: basic and advanced vectorization, data organization in the geodatabase, import / export of various data formats to GIS, creation of color compositions from satellite images, mapping, 3D visualization and animation of geographic data, geoprocessing, map algebra, spatial and attribute demands, spatial prediction, analysis of digital

elevation models (DEM). Students learn the topics of the semester project in the middle of the semester and solve the assigned task in the team using the skills and knowledge acquired during the semester.

#### **Recommended literature:**

#### **Course language:**

Slovak or Czech or English

### Notes:

#### **Course assessment**

Total number of assessed students: 383

А	В	С	D	Е	FX
28.46	26.89	26.89	12.01	5.74	0.0

Provides: doc. Mgr. Michal Gallay, PhD., Mgr. Michaela Nováková

Date of last modification: 27.06.2022

University: P. J.	. Šafárik Univers	ity in Košice						
Faculty: Faculty	y of Science							
Course ID: ÚG GEOM/15	GE/ Course name: Geography							
Course type, sc Course type: Recommended Per week: Per Course metho	ope and the met l course-load (h r study period: d: present	thod: ours):						
Number of EC	I'S credits: 1							
Recommended	semester/trimes	ster of the cours	e:					
Course level: I.								
Prerequisities:								
Conditions for	course completi	on:						
Learning outco	mes:							
Brief outline of	the course:							
Recommended	literature:							
Course languag	ge:							
Notes:								
Course assessm Total number of	ent f assessed studen	ts: 177						
А	В	С	D	E	FX			
14.12	14.12 23.73 24.86 16.38 19.77 1.13							
Provides:								
Date of last mo	dification: 27.06	5.2022						
Approved: doc.	RNDr. Zuzana J	ešková, PhD., pr	of. Mgr. Jarosla	v Hofierka, PhD.				

University: P. J	University: P. J. Šafárik University in Košice							
Faculty: Facult	Faculty: Faculty of Science							
Course ID: ÚG GEOM1/21	ourse ID: ÚGE/Course name: GeographyEOM1/21							
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present								
Number of EC	1 S credits: 2							
Recommended	semester/trimes	ster of the cours	e:					
Course level: 1.								
Prerequisities:								
<b>Conditions for</b>	course completi	on:						
Learning outco	mes:							
Brief outline of	the course:							
Recommended	literature:							
Course languag	ge:							
Notes:								
Course assessment Total number of assessed students: 18								
А	В	С	D	Е	FX			
22.22 11.11 5.56 27.78 22.22 11.11								
Provides:								
Date of last modification: 27.06.2022								
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.								

University: P. J.	. Šafárik Univers	ity in Košice					
Faculty: Faculty	y of Science						
<b>Course ID:</b> ÚG GNB/21	E/ Course name: Geography of Religion						
Course type, sc Course type: I Recommended Per week: 1 / 1 Course metho	ope and the met Lecture / Practice I course-load (h Per study peri d: present	thod: ours): od: 14 / 14					
Number of EC	I'S credits: 3						
Recommended	semester/trimes	ster of the cours	e: 3.				
Course level: I.							
Prerequisities:							
Conditions for	course completi	on:					
Learning outco	mes:						
Brief outline of	the course:						
Recommended	literature:						
Course languag	ge:						
Notes:							
Course assessm Total number of	Course assessment Total number of assessed students: 10						
А	В	С	D	Е	FX		
10.0	10.0 20.0 30.0 30.0 10.0 0.0						
Provides: doc. Mgr. Ladislav Novotný, PhD.							
Date of last mo	Date of last modification: 27.06.2022						
Approved: doc.	RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.			
University: P. J.	. Šafárik Univers	ity in Košice					
-------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------	-------------------------------------------------------	-------------------	----------------	-----	--	
Faculty: Faculty	y of Science						
Course ID: ÚG GPOL/21	E/ Course na	E/ Course name: Geography of agriculture and industry					
Course type, sc Course type: I Recommended Per week: 1 / 1 Course metho	ope and the met Lecture / Practice d course-load (h l Per study peri d: present	thod: ours): od: 14 / 14					
Number of EC	<b>TS credits:</b> 3						
Recommended	semester/trimes	ster of the cours	e: 4.				
<b>Course level:</b> I.							
Prerequisities:							
<b>Conditions for</b>	course completi	on:					
Learning outco	omes:						
Brief outline of	the course:						
Recommended	literature:						
Course languag	ge:						
Notes:							
Course assessm Total number of	ent f assessed studen	ts: 13					
А	В	С	D	Е	FX		
30.77	15.38	23.08	15.38	15.38	0.0		
Provides: Mgr. Marián Kulla, PhD., doc. Mgr. Ladislav Novotný, PhD.							
Date of last mo	dification: 14.02	2.2023					
Approved: doc.	. RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.			

University: P. J. Šafa	árik University in Košice
Faculty: Faculty of S	Science
<b>Course ID:</b> ÚGE/ MG/18	Course name: Geography of mining
Course type, scope a Course type: Lectu Recommended cou Per week: 2 Per sta Course method: pr	and the method: re irse-load (hours): udy period: 28 esent
Number of ECTS ci	redits: 2
Recommended sem	ester/trimester of the course: 3.
Course level: I.	
Prerequisities:	
<b>Conditions for cour</b> The evaluation is ba is carried out during The final control is is a weighted averag only to student who the evaluation.	<b>se completion:</b> sed on a combination of continuous and final control. The continuous control the teaching part by written test with a share of 30 % of the final evaluation. written and constitutes 70 % of the final evaluation. The resulting evaluation e of the continuous (30 %) and final (70 %) controls. Credits will be awarded achieves the evaluation at the minimum level of the mark E in every part of
Learning outcomes: To acquaint students of geographic aspect from a geographical	with basic facts and knowledge of the history of mining science from the view to obtain information overview of the history of the Slovak and world mning point of view.
Brief outline of the Historical foundation heyday in the Midd Empire, First World the world "gold rush consequences of min importance for the p	<b>course:</b> ns of the global mining industry, mining oldest written records of mining le Ages, the first mining maps, Slovak ore mining in the Austro-Hungarian Mining Academy in Banská Štiavnica mining and migration of the population, ", salt roads Europe, coal mining and electrification of industry, environmental ning devastation, mining open-air museums in Slovakia and Europe and their romotion of tourism.
Recommended liter Ježek, B. a Hummel Preklad z českého or 80-7225-218-6. Puzder, J., 2000: Sar Vozár, J., 2000: Zlata 80-968421-4-5. Vozár, J., 2002: Kód Banská agentúra, 20 Zícha, Z., 2005: Bac a legacy which cann 80-902278-9-9.	ature: , J., 2006: Georgius Agricola, Dvanásť kníh o baníctve a hutníctve. riginálu: Petr, K. a Petrová, M., Ostrava: Montanex a.s., 2006, 546s., ISBN nuel Mikovíni, život a dielo. Košice: FBERG TU Košice, 115s. á kniha baníctva. Košice: Tibor Turčan/Banská agentúra, 2000, 263s., ISBN ex mestského a banského práva Banskej Štiavnice. Košice: Tibor Turčan/ 02, 71s., ISBN 80-968621-2-X. k to the past. The history of technology and manpower in the mining is ot be forgotten. Ústí nad Labem: CDL Design s.r.o., 2005, 98p., ISBN

Course languag Slovak	ge:				
Notes: without notes					
Course assessm Total number o	nent f assessed studen	ts: 9			
А	В	С	D	E	FX
77.78	11.11	11.11	0.0	0.0	0.0
Provides: doc. ]	Ing. Katarína Bói	nová, PhD.			
Date of last mo	dification: 19.08	3.2020			
Approved: doc	. RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jarosla	v Hofierka, PhD.	

University: P. J.	University: P. J. Šafárik University in Košice					
Faculty: Faculty	Faculty: Faculty of Science					
Course ID: ÚG MOG/21	E/ <b>Course na</b>	ame: Geography	of mining			
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 EC	I'S credits: 2					
Recommended	semester/trimes	ster of the cours	<b>e:</b> 2.			
<b>Course level:</b> I.						
Prerequisities:						
Conditions for	course completi	on:				
Learning outco	mes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	ge:					
Notes:						
Course assessm Total number of	ent f assessed studen	ıts: 5				
А	В	С	D	Е	FX	
60.0	20.0	20.0	0.0	0.0	0.0	
Provides: doc. Ing. Katarína Bónová, PhD.						
Date of last mo	dification: 16.02	2.2023				
Approved: doc.	Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.					

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚGE/ OBY2/18	Course name: Geography of population and settlements
Course type, scope a Course type: Lectur Recommended cou Per week: 2 / 2 Per Course method: pro	and the method: re / Practice rse-load (hours): study period: 28 / 28 esent
Number of ECTS cr	redits: 6
Recommended seme	ester/trimester of the course: 3.
Course level: I.	
Prerequisities:	
<b>Conditions for cours</b> Evaluation of studen examination for the p participation of stude reach required active can not log on to the	se completion: t performance is carried out by combining ongoing review during the term of period of the semester. Continuous control consists of min. 80 % of the active ents in teaching and successfully solving assignments. If a student does not e participation of teaching and successfully does not solve the given problem test.
Learning outcomes: The student will acc Settlements. Student the world according	juire theoretical and methodological basis of Geography of Population and s will acquire a basic spatial differentiation of population and settlements in to basic characteristics.
Brief outline of the of Population geograph Distribution of population structure Geography settlemen Geographical location morphology; Urban hierarchy of settlem methods of research) geographical interpret Seminars Seminars during the se phenomena studied i	<b>course:</b> by as a science discipline; Trends and forecasts of the world population; lation; Natural and mechanical movement of population (natality, mortality, ement of the population, model of demographic cycle, population migration); on the basis of biological, cultural and economic characteristics; nts as a scientific discipline; Settlement development and settlement systems; on of settlements; The structure of settlements by size, dynamics and geography (definition of city, creation of city and functions cities); The nents and Gravity; Urbanization (basic concepts, indicators, aspects and y; Rural settlement systems (compact and scattered rural settlements and their etation).
Recommended litera BAŠOVSKÝ, O., M UK, Bratislava, 221. CHALUPA, P., TAR Brno.	ature: LÁDEK, J. 1989: Geografia obyvateľstva a sídel. Prírodovedecká fakulta ABOVÁ, Z. 1990: Geografie obyvatelstva, demografie, geografie sídel. MU,

MATLOVIČ, R. 2001: Geografia relígií. Fakulta humanitných a prírodných vied Prešovskej univerzity v Prešove. Prešov, 375.

MLÁDEK, J. 1992: Základy geografie obyvateľstva. SPN Bratislava, 230.

MLÁDEK, J. a kol. 2006: Atlas obyvateľstva Slovenska. UK Bratislava, 168.

MLÁDEK, J., KUSENDOVÁ, D., MARENČÁKOVÁ, J., PODOLÁK, P., VAŇO, B. 2006: Demogeografická analýza Slovenska. UK Bratislava, 222.

PAVLÍK, Z., RYCHTAŘÍKOVÁ, J., ŠUBRTOVÁ, A. 1986: Základy demografie. Academia Praha.

VOTRUBEC, C. 1980: Lidská sídla, jejich typy a rozmístnění ve světe. Academia Praha. SHORT, J. R. 1994: Lidská sídla. Velká geografická encyklopedie světa. Nakladatelský dům OP Praha

### Course language:

Slovak

### Notes:

Total number of assessed students: 867

А	В	С	D	Е	FX
9.11	14.42	21.68	22.61	28.6	3.58

Provides: RNDr. Janetta Nestorová-Dická, PhD., doc. Mgr. Michal Gallay, PhD.

**Date of last modification:** 21.02.2018

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J.	University: P. J. Šafárik University in Košice				
Faculty: Faculty	Faculty: Faculty of Science				
<b>Course ID:</b> ÚG GST/21	E/ <b>Course name:</b> Geography of services and tourism				
Course type, sc Course type: I Recommended Per week: 1 / 1 Course metho	ope and the met Lecture / Practice d course-load (h l Per study peri d: present	thod: c ours): od: 14 / 14			
Number of EC	I'S credits: 3				
Recommended	semester/trimes	ster of the cours	<b>e:</b> 5.		
Course level: 1.					
Prerequisities:					
<b>Conditions for</b>	course completi	ion:			
Learning outco	mes:				
Brief outline of	the course:				
Recommended	literature:				
Course languag	ge:				
Notes:					
Course assessm Total number of	nent f assessed studen	.ts: 0			
А	В	С	D	Е	FX
0.0	0.0	0.0	0.0	0.0	0.0
Provides: Mgr. Marián Kulla, PhD., doc. Mgr. Ladislav Novotný, PhD.					
Date of last mo	dification: 27.06	5.2022			
Approved: doc.	RNDr. Zuzana	Ješková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.	

University: P. J. Ša	University: P. J. Šafárik University in Košice					
Faculty: Faculty of	Faculty: Faculty of Science					
<b>Course ID:</b> ÚGE/ GCR/12	ÚGE/ Course name: Geography of the Czech Republic					
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 sen	nester/trimes	ster of the cours	e: 5.			
Course level: I., II.						
Prerequisities:						
Conditions for cou	irse completi	on:				
Learning outcome	s:					
Introduction, locat Czech Republic, m structure and the re Czech Republic, un present landscape t History of settleme and religious struct development. Econ and tourism.	Brief outline of the course: Introduction, location, basic FG features of the Czech Republic. Geological structure of the Czech Republic, main geological entities according to the newest classification. Geomorphological structure and the relief evolution, geomorphological entities and units. Climate, hydrography of the Czech Republic, underground waters and mineral waters. Soils, phytogeography and zoogeography, present landscape types. History of settlements in the Czech Republic from the historical perspective. National, linguistic and religious structure. Urban and rural settlements. Administrative division and its historical development. Economiy of the country - natural resouces, agriculture, industry, transport, education and tourism.					
Recommended lite	erature:					
Notos:						
Course assessment Total number of assessed students: 295						
A	В	С	D	Е	FX	
51.86	31.19	14.24	2.71	0.0	0.0	
Provides: Mgr. Ma	Provides: Mgr. Marián Kulla, PhD., Mgr. Imrich Sládek, PhD.					
Date of last modifi	ication: 27.06	5.2022				
Approved: doc. RN	Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.					

University: P. J.	. Šafárik Univers	ity in Košice			
Faculty: Faculty	Faculty: Faculty of Science				
<b>Course ID:</b> ÚG GCR1/21	: ÚGE/ Course name: Geography of the Czech Republic				
Course type, sc Course type: I Recommended Per week: 2 / 1 Course metho	ope and the met Lecture / Practice I course-load (h I Per study peri d: present	thod: c ours): od: 28 / 14			
Number of EC	IS credits: 4		-		
Recommended	semester/trimes	ster of the cours	e: 5.		
Course level: I.	, II				
Prerequisities:					
Conditions for	course completi	on:			
Learning outco	mes:				
Brief outline of	the course:				
Recommended	literature:				
Course languag	ge:				
Notes:					
Course assessm Total number of	Course assessment Total number of assessed students: 1				
А	В	С	D	Е	FX
0.0	0.0	100.0	0.0	0.0	0.0
Provides: Mgr. Marián Kulla, PhD., doc. Mgr. Ladislav Novotný, PhD.					
Date of last mo	dification: 27.06	5.2022			
Approved: doc.	RNDr. Zuzana J	Ješková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.	

University: P. J	University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science						
<b>Course ID:</b> ÚG GAH/21	E/ Course na	ame: Geography	of the atmospher	e and hydrosphe	re	
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 1 Per study period: 42 / 14 Course method: present						
Number of EC	IS credits: 6					
Recommended	semester/trimes	ster of the cours	<b>e:</b> 3.			
Course level: I.						
Prerequisities:						
Conditions for	course completi	on:				
Learning outco	omes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	ge:					
Notes:						
Course assessm Total number o	nent f assessed studen	ts: 41				
А	В	С	D	Е	FX	
0.0	24.39	31.71	36.59	7.32	0.0	
<b>Provides:</b> RNDr. Dušan Barabas, CSc., RNDr. Alena Gessert, PhD., prof. Mgr. Jaroslav Hofierka, PhD.						
Date of last mo	dification: 27.06	5.2022				
Approved: doc	. RNDr. Zuzana J	Ješková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.		

University: P. J	University: P. J. Šafárik University in Košice				
Faculty: Facult	Faculty: Faculty of Science				
Course ID: ÚG GPED/21	E/ Course na	Course name: Geography of the pedosphere and biosphere			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 1 Per study period: 42 / 14 Course method: present					
Number of EC	<b>TS credits:</b> 6				
Recommended	semester/trimes	ster of the cours	<b>e:</b> 4.		
Course level: I.					
Prerequisities:					
Conditions for	course completi	on:			
Learning outco	omes:				
Brief outline of	the course:				
Recommended	literature:				
Course languag	ge:				
Notes:					
Course assessm Total number of	Course assessment Total number of assessed students: 38				
А	В	С	D	Е	FX
0.0	5.26	15.79	31.58	18.42	28.95
Provides: RNDr. Dušan Barabas, CSc., doc. Mgr. Michal Gallay, PhD.					
Date of last mo	dification: 13.02	2.2023			
Approved: doc.	. RNDr. Zuzana J	Ješková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.	

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of S	Faculty: Faculty of Science				
<b>Course ID:</b> ÚGE/ SGI2/21	Course ID: ÚGE/ Course name: Geoinformatics seminar GGI2/21				
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 EC18 cr					
Recommended seme	ster/trimester of the cours				
Course level: 1.					
Prerequisities:					
Conditions for cours	e completion:				
Learning outcomes:					
Brief outline of the c	ourse:				
Recommended litera	iture:				
Course language:					
Notes:					
<b>Course assessment</b> Total number of asses	ssed students: 0				
	abs n				
0.0 0.0					
Provides: doc. Mgr. Michal Gallay, PhD., doc. RNDr. Ján Kaňuk, PhD., Mgr. Ján Šašak, PhD.					
Date of last modification: 27.06.2022					
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.					

University: P. J. Šafárik University in Košice				
Faculty: Faculty of Science				
Course ID: ÚGE/ GEX1/07Course name: Geological excursion				
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: Per study period: 3d Course method: present				
Number of ECTS credits: 2				
Recommended semester/trimester of the course:	2.			
Course level: I.				
Prerequisities:				
<b>Conditions for course completion:</b>				
Learning outcomes:				
<b>Brief outline of the course:</b> Visiting of different localities in the Western Carpa Central Western Carpathians. Visiting of several 1 know the process of manufacturing of the rocks.	athian tectonic localities of m	units - Flysh be ining in Slovaki	elt, Klippen belt, a and getting to	
Recommended literature: Regionálne geologické mapy Slovenska (1:50 000) ŽEC, B. et al., 2005: Exkurzný sprievodca ku kong Zemplínska šírava - Medvedia hora. CompuGraph, BIELY, A. et al., 1996: Geologická mapa Slovenska COE, A. L. (ed.) et al., 2010: Geological Field tech	) + Vysvetlivky gresu Slovensko , Košice, 138s. a, 1 : 500 000. miques. Wiley-	: ej geologickej sp MŽP SR, ŠGÚI Blackwell, UK,	ooločnosti DŠ, Bratislava. 323 pp.	
Course language:				
Notes:				
Course assessment Total number of assessed students: 477				
A B C	D	Е	FX	
82.18 13.42 2.73	0.0	0.0	1.68	
Provides: doc. Ing. Katarína Bónová, PhD.		·	·	
Date of last modification: 26.08.2020				
Approved: doc. RNDr. Zuzana Ješková, PhD., prof	f. Mgr. Jaroslav	v Hofierka, PhD.		

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of S	cience				
<b>Course ID:</b> ÚGE/ GEX2/21	Course ID: ÚGE/ Course name: Geological excursion GEX2/21				
Course type, scope a Course type: Practic Recommended cour Per week: Per stud Course method: pre	nd the method: ce rse-load (hours): y period: 3d esent				
Number of ECTS cr	edits: 2				
Recommended seme	ster/trimester of the cour	-se: 2.			
Course level: I.					
Prerequisities:					
Conditions for cours	e completion:				
Learning outcomes:					
Brief outline of the c	ourse:				
Recommended litera	iture:				
Course language:					
Notes:					
Course assessment Total number of asses	ssed students: 51				
	abs n				
100.0 0.0					
Provides: doc. Ing. K	atarína Bónová, PhD.				
Date of last modifica	Date of last modification: 27.06.2022				
Approved: doc. RND	Dr. Zuzana Ješková, PhD.,	prof. Mgr. Jaroslav Hofierka, PhD.			

University: P. J. Safa	arik University in Kosice					
Faculty: Faculty of S	Faculty: Faculty of Science					
Course ID: ÚGE/ GMAP/13Course name: Geomorphological mapping						
Course type, scope a Course type: Pract Recommended cou Per week: 2 Per stu Course method: pr	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 c	Number of ECTS credits: 2					
<b>Recommended semester/trimester of the course:</b> 4.						

Course level: I., II.

**Prerequisities:** 

#### **Conditions for course completion:**

The evaluation of the subject consists of assessment of one main semestral work - geomorphological map of the area (50 p), 1 partial work (10 p) and report from the field mapping (40 p), the total amount of points is 100. The student has to aquire minimum of half points from each work. For successful graduation of the subject the student has to aquire 51 points and more.

#### Learning outcomes:

after the graduation of the subject the student should information applied to the praxis and be able to map area with the main aim of high quality map and the legenda.

#### Brief outline of the course:

The main of the subject is to understand the topic of the geomorphological mapping, geomorphological map and its importance. It deals with the history of the geomorphological mapping, maps in slovak and foreign literature, about theory and praxis of field works and maps compilation, creating of the geomorphological map legenda for different relief types. With help of graphical softwers we are working with morphometric and morphographic relief characeter, the morphogenetical nad morphodynamical interpretation of the geomorphological map. After the theoretical part of seminars there is practical field mapping in the scale of 1: 10 000 at the and of the semester.

### **Recommended literature:**

DEMEK, J. (edit.), 1972: Manual of detailed geomorphological mapping. Academia, Brno, 344 s. MINÁR, J., 1995: Niektoré teoreticko-metodologické problémy geomorfológie vo väzbe na tvorbu komplexných geomorfologických máp. Acta Facultatis Rerum Naturalium Universitatis Comenianae, Geographica Nr. 36, Bratislava, 7-125.

SMITH, M., PARON P., GRIFFITHS, J., 2011: Geomorphological mapping – methods and applications. School of Geography, Geology and the Environment, Kingston University, UK. 610 s.

URBÁNEK, J., 1997: Geomorfologická mapa: niektoré problémy geomorfologického mapovania na Slovensku. Geografický časopis, 49, 3-4, 175-186.

ZAŤKO, M. et al. 1986: Obecná geomorfologická mapa a jej legenda. In: Cvičenia z fyzickej geografie. Prírodovedecká fakulta Univerzity Komenského, Bratislava. 43-53.

Course languag	ge:				
Notes:					
Course assessment Total number of assessed students: 13					
А	В	С	D	Е	FX
84.62	0.0	15.38	0.0	0.0	0.0
Provides: RND	r. Alena Gessert,	PhD.		<u> </u>	
Date of last modification: 13.02.2023					
Approved: doc	. RNDr. Zuzana J	ešková, PhD., pr	of. Mgr. Jaroslav	/ Hofierka, PhD.	

University: P. J.	. Šafárik Univers	ity in Košice				
Faculty: Faculty	y of Science					
Course ID: ÚG GMP/21	ourse ID: ÚGE/ Course name: Geomorphological mapping MP/21					
Course type, sc Course type: I Recommended Per week: 2 Pe Course metho	ope and the me Practice d course-load (h er study period: d: present	thod: ours): 28				
Number of EC	<b>I'S credits:</b> 3					
Recommended	semester/trimes	ster of the cours	<b>e:</b> 4.			
<b>Course level:</b> I.						
Prerequisities:						
<b>Conditions for</b>	course completi	on:				
Learning outco	omes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	ge:					
Notes:						
Course assessm Total number of	ent f assessed studen	.ts: 1				
А	В	С	D	Е	FX	
0.0	0.0 0.0 100.0 0.0 0.0 0.0					
Provides: RNDr. Alena Gessert, PhD.						
Date of last mo	dification: 27.06	5.2022				
Approved: doc.	RNDr. Zuzana	Ješková, PhD., pr	of. Mgr. Jaroslav	v Hofierka, PhD.		

University: P. J.	. Šafárik Univers	ity in Košice				
Faculty: Faculty	y of Science					
Course ID: ÚG GEM2/18	Course ID: ÚGE/ Course name: Geomorphology GEM2/18					
Course type, sc Course type: I Recommended Per week: 2 / 2 Course metho	ope and the met Lecture / Practice l course-load (h 2 Per study peri d: present	thod: ours): od: 28 / 28				
Number of EC	<b>I'S credits:</b> 6					
Recommended	semester/trimes	ster of the cours	<b>e:</b> 2.			
Course level: I.						
Prerequisities:						
Conditions for	course completi	on:				
Learning outco	mes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	ge:					
Notes:						
Course assessm Total number of	ent f assessed studen	ts: 1322				
А	В	С	D	Е	FX	
10.59	10.59 21.03 21.63 16.94 19.74 10.06					
Provides: RNDr. Alena Gessert, PhD., Mgr. Imrich Sládek, PhD.						
Date of last mo	dification: 13.02	2.2023				
Approved: doc.	RNDr. Zuzana J	Ješková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.		

University: P. J. Šafárik University in Košice						
Faculty: Faculty of Science						
Course ID: KF/ DF2p/03Course name: History of Philosophy 2 (General Introduction)						
Course type, scope = Course type: Lectu Recommended cou Per week: 2 / 1 Per Course method: pr	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 sem	Recommended semester/trimester of the course: 6.					
Course level: I., II.						

Prerequisities:

#### **Conditions for course completion:**

The condition for awarding the evaluation will be the active approach of students to fulfilling their study obligations, independent work with selected philosophical texts in the library, active participation and creative work in seminars. In connection with the possibility of interrupting face-to-face teaching, there will be greater demands on the student's independent study and the processing of professional literature, which will be continuously evaluated, using e-mail to communicate with the teacher, at the end of the semester, preparing and handing in the semester's seminar work by the set date, or also passing a knowledge test - about which the students will be informed in advance in sufficient time.

#### Learning outcomes:

Deepening knowledge about the development of spiritual culture in the European spiritual space and pointing out the most important sources of this development: (1) ancient philosophy and science, (2) Christianity as the second pillar of Europe, (3) the Renaissance and the emergence of modern science (mathematical natural science) as the third pillar of European development. Development of critical thinking skills, active position in professional (ethics of science), public and private life (ethics of responsibility). Transcending narrowly specialized views of the world.

### Brief outline of the course:

### **Recommended literature:**

Antológia z diel filozofov. Predsokratovci a Platon. Zost. J. Martinka. Bratislava: Nakladateľstvo Epocha 1970; Antológia z diel filozofov. Od Aristotela po Plotina. Zost. J. Martinka. Bratislava: Nakladateľstvo Pravda 1972. Predsokratovci a Platon. Antológia z diel filozofov. Zost. J. Martinka. Bratislava: Vydavateľstvo Iris 1998. Od Aristotela po Plotina. Antológia z diel filozofov. Zost. J. Martinka. Bratislava: Vydavateľstvo IRIS 2006. Anzenbacher,A.: Úvod do filozofie. Prel. K. Šprunk. Praha: SPN 1990. Barthes, R.: Mytologie. Prel. J. Fulka. Praha: Dokořán 2004. Bělohradský, V.: Společnost nevolnosti. Eseje z pozdější doby. Praha: SLON 2009. Benjamin, W.: Iluminácie. Prel. A. Bžoch; J. Truhlářová. Bratislava: Kalligram 1999. Borges, J. L.: Borges ústne. Prednášky a eseje. Prel. P. Šišmišová. Bratislava: Kalligram 2005. Cassirer, E.: Esej o človeku. Prel. J. Piaček. Bratislava: Nakladateľstvo Pravda 1977. Debord, G.: Společnost spektáklu. Prel. J. Fulka; P. Siostrzonek. Praha: Nakladatelství :intu: 2007. Farkašová, E.: Na rube plátna. Bratislava: Vydavateľstvo Spolku slovenských spisovateľov 2013.

Feyerabend, P.: Věda jako umění. Prel. P. Kurka. Praha: JEŽEK 2004. Freud, S.: Nepokojenost v kultuře. Prel. L. Hošek. Praha: Hynek 1998. Hadot, P.: Co je antická filosofie. Prel. M. Křížová. Praha: Vyšehrad 2017. Hippokratés: Vybrané spisy. Prel. H. Bartoš; J. Černá; J. Daneš; S. Fischerová. Praha: OIKOYMENH 2012. Husserl, E.: Filosofie jako přísná věda. Prel. A. Novák. Praha: Togga 2013. Kuhn, T. S.: Štruktúra vedeckých revolúcií. Prel. J. Viceník. Bratislava: Nakladateľstvo Pravda 1981. Leško, V., Mihina, F. a kol.: Dejiny filozofie. Bratislava. Iris 1993 Leško, V.: Dejiny filozofie I. Od Tálesa po Galileiho. Prešov: v. n. 2004, 2007. Leško, V.: Dejiny filozofie II. Od Bacona po Nietzscheho. Prešov: v. n. 2008. McLuhan, M.: Jak rozumět médiím. Extenze člověka. Prel. M. Calda. Praha: Mladá fronta 2011. Patočka, J.: Duchovní člověk a intelektuál. In: Patočka, J.: Péče o duši III. Praha: OIKOYMENH 2002, s. 355 - 371. Popper, K. R.: Otevřená společnost a její nepřátelé I. Platónovo zaříkávání. Prel. M. Calda; J. Moural. Praha: OIKOYMENH 2011. Sloterdijk, P.: Kritika cynického rozumu. Prel. M. Szabó. Bratislava: Kalligram 2013. Störig, H.J.: Malé dějiny filozofie. Prel. P. Rezek. Praha: Zvon 1991. Wittgenstein, L.: Filozofické skúmania. Prel. F. Novosád. Bratislava: Nakladateľstvo Pravda 1979. Wright von, H. G.: Humanizmus ako životný postoj. Prel. M. Žitný. Kalligram 2001. Žižek, S.: Mor fantázií. Prel. M. Gálisová; V. Gális. Bratislava: Kalligram 1998.

### **Course language:**

Notes:						
Course assessment Total number of assessed students: 746						
ABCDEFX						
60.59	14.21	12.6	8.58	3.35	0.67	
Provides: doc. ]	PhDr. Peter Nezn	ík, CSc.				
Date of last modification: 11.07.2022						
Approved: doc	. RNDr. Zuzana J	ešková, PhD., p	rof. Mgr. Jarosla	v Hofierka, PhD.		

University: P. J.	. Šafárik Univers	ity in Košice				
Faculty: Faculty	y of Science					
Course ID: ÚG EXH/21	ÚGE/ Course name: Human Geography Excursion					
Course type, sc Course type: I Recommended Per week: Per Course metho	ope and the met Practice I course-load (h r study period: ( d: present	<b>thod:</b> ours): 6d				
Number of EC	<b>FS credits:</b> 3					
Recommended	semester/trimes	ster of the cours	<b>e:</b> 4.			
<b>Course level:</b> I.						
Prerequisities:						
Conditions for	course completi	on:				
Learning outco	mes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	ge:					
Notes:						
Course assessm Total number of	ent f assessed studen	ts: 6				
А	В	С	D	Е	FX	
66.67	66.67 16.67 16.67 0.0 0.0 0.0					
Provides: Mgr. Marián Kulla, PhD., doc. Mgr. Ladislav Novotný, PhD.						
Date of last mo	dification: 27.06	5.2022				
Approved: doc.	RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.		

University: P. J.	. Šafárik Univers	ity in Košice				
Faculty: Faculty	y of Science					
Course ID: ÚG EXHG1/15	Course ID: ÚGE/ Course name: Human Geography Excursion EXHG1/15					
Course type, sc Course type: H Recommended Per week: Per Course metho	ope and the met Practice I course-load (h r study period: ( d: present	<b>thod:</b> ours): 6d				
Number of EC	<b>FS credits:</b> 3					
Recommended	semester/trimes	ster of the cours	<b>e:</b> 5.			
Course level: I.						
Prerequisities:						
<b>Conditions for</b>	course completi	on:				
Learning outco	mes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	ge:					
Notes:						
Course assessm Total number of	ent f assessed studen	ts: 790				
А	В	С	D	Е	FX	
78.99	78.99 11.14 7.59 0.89 0.76 0.63					
<b>Provides:</b> RNDr. Stela Csachová, PhD., Mgr. Marián Kulla, PhD., doc. Mgr. Ladislav Novotný, PhD., RNDr. Janetta Nestorová-Dická, PhD.						
Date of last modification: 03.05.2015						
Approved: doc.	RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.		

University: P. J	. Šafárik Univers	sity in Košice			
Faculty: Facult	y of Science				
Course ID: ÚG HGS/15	Course ID: ÚGE/ Course name: Human Geography of Slovakia				
Course type, sc Course type: I Recommended Per week: 3 / 1 Course metho	ope and the me Lecture / Practice I course-load (h I Per study peri d: present	thod: c ours): od: 42 / 14			
Number of EC	<b>I'S credits:</b> 5				
Recommended	semester/trimes	ster of the cours	<b>e:</b> 6.		
Course level: I.					
Prerequisities:					
Conditions for	course completi	on:			
Learning outco	mes:				
Brief outline of	the course:				
Recommended	literature:				
Course languag	ge:				
Notes:					
Course assessm Total number of	ent f assessed studen	ıts: 543			
А	В	С	D	Е	FX
4.24	10.5	18.97	34.99	26.7	4.6
Provides: Mgr. Marián Kulla, PhD., RNDr. Janetta Nestorová-Dická, PhD., Mgr. Loránt Pregi, PhD., prof. Mgr. Jaroslav Hofierka, PhD., doc. Mgr. Ladislav Novotný, PhD.					
Date of last mo	dification: 31.03	3.2020			
Approved: doc.	RNDr. Zuzana .	Ješková, PhD., pr	of. Mgr. Jaroslav	v Hofierka, PhD.	

University: P. J.	. Šafárik Univers	ity in Košice				
Faculty: Faculty	Faculty: Faculty of Science					
Course ID: ÚG HGS1/21	E/ <b>Course n</b> a	/ Course name: Human Geography of Slovakia				
Course type, sc Course type: I Recommended Per week: 2 / 1 Course metho	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 EC	<b>FS credits:</b> 5					
Recommended	semester/trimes	ster of the cours	e: 5.			
<b>Course level:</b> I.						
Prerequisities:						
Conditions for	course completi	on:				
Learning outco	Learning outcomes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	Course language:					
Notes:	Notes:					
Course assessm Total number of	ent f assessed studen	ıts: 3				
А	В	С	D	Е	FX	
0.0	0.0	33.33	0.0	66.67	0.0	
<b>Provides:</b> RNDr. Janetta Nestorová-Dická, PhD., Mgr. Marián Kulla, PhD., doc. Mgr. Ladislav Novotný, PhD.						
Date of last modification: 27.06.2022						
Approved: doc.	RNDr. Zuzana J	Ješková, PhD., pr	of. Mgr. Jaroslav	v Hofierka, PhD.		

University: P. J.	University: P. J. Šafárik University in Košice						
Faculty: Faculty	of Science						
<b>Course ID:</b> ÚG HUGN/15	E/ Cours	Course name: Human geography (Non-production Systems)					
Course type, sc Course type: L Recommended Per week: 2 / 1 Course method	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 EC	<b>FS credits:</b> 3						
Recommended	semester/tri	mester of the cours	<b>e:</b> 5.				
Course level: I.							
Prerequisities:							
Conditions for	course com	oletion:					
Learning outco	mes:						
Brief outline of	the course:						
BOROVSKÝ, J GOELDNER, C Biz books, 545 HALÁS, M., 20 Philosopher Uni HALL, C.M H and New York, HAVRLANT, J. Ostravská unive MARIOT, P., 19 OTRUBOVÁ, H cestovného ruch ŠTEPÁNEK, K 228s.	<ul> <li>Recommended literature:</li> <li>BOROVSKÝ, J. a kol., 2008: Cestovný ruch, trendy a perspektívy. Iura Edition, 280 s.</li> <li>GOELDNER, CH.R., BRENT RICHIE, J.R., 2014: Cestovní ruch - principy, příklady, trendy.</li> <li>Biz books, 545 s.</li> <li>HALÁS, M., 2000: Zahraničný obchod SR s ČR. Geographical Studies 7, Constantine the</li> <li>Philosopher University Nitra, s. 98-107.</li> <li>HALL, C.M PAGE, S.J. 2002: The geography of tourism and recreation, 2. edition, London and New York, 399 p.</li> <li>HAVRLANT, J., 2007: Geografic cestovního ruchu I. Základy geografic cestovního ruchu, Ostravská univerzita, 41 s.</li> <li>MARIOT, P., 1983: Geografia cestovného ruchu. Veda, Bratislava, 224 s.</li> <li>OTRUBOVÁ, E., 2003: Humánna geografia II (Geografia zahraničného obchodu, Geografia cestovného ruchu). Prírodovedecká fakulta UPJŠ, Košice, 105 s.</li> <li>ŠTEPÁNEK, KOPAČKA, ŠÍP, 2001: Geografie cestovního ruchu, Vydalo Karolinum Praha, 228</li> </ul>						
Course languag	Course language:						
Notes:							
Course assessment							
A	B	C	D	E	FX		
17.15	D         C         D         L         TX           22.93         27.55         20.81         10.4         1.16						
Provides: Mor	Marián Kull	PhD Mgr Jozef F	Bogľarský				
Date of last mo	Date of last modification • 20.09.2018						
Date of last into		0.07.2010					

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J. Šafán	rik University in Košice					
Faculty: Faculty of S	cience					
<b>Course ID:</b> ÚGE/ HUG2a/05	Course name: Human geography (productive sphere)					
Course type, scope a Course type: Lectur Recommended cour Per week: 3 / 1 Per Course method: pre	nd the method: re / Practice rse-load (hours): study period: 42 / 14 esent					
Number of ECTS cro	edits: 5					
Recommended seme	ster/trimester of the course: 4.					
Course level: I.						
Prerequisities:						
Conditions for cours	e completion:					
Learning outcomes:						
Location theories, fa regionalisation of th industry. Relationship world economy. Deve The agricultural count typology.	actors and methods of industry evaluation. Territorial industrial units and e industry in Slovakia. Geographical characteristics of selected types of p of industry and environment. Trends in development and problems of the elopment of agriculture and regularities of distribution of agricultural lands. ntries and their typology. The land use map. Geography of forests and its					
<b>Recommended litera</b> FALKOWSKI, J., KO	<b>ture:</b> DSTROWICKI, J., 2001: Geografia rolnictwa świata. PWN, Warszawa, 516					
p. KNOX, P., L., et al. 2 International Edition. KOREC, P. 1994: Hu Bratislava, 120 s. MIRVALD, S., 2002: MIRVALD, S., 2002:	2010: Human geography. Places and regions in Global Context. pearson , 513 p. mánna geografia 1. Prírodovedecká fakulta, Univerzita Komenského, Geografie dopravy II. ZČU Plzeň, 56 s. Geografie dopravy III. ZČU Plzeň, 43 s.					
POPJAKOVÁ, D., 1997: Základné kapitoly z geografie priemyslu, Prešov: PU, 144 s. SPIŠIAK, P., 2005: Základy geografie poľnohospodárstva a lesného hospodárstva. Prírodovedecká fakulta, Univerzita Komenského, Bratislava. 140 s. TOUŠEK, V. a kol., 2008: Ekonomická a sociální geografie, Plzeň, 2008, 411 s.						
Course language:						
Notes:						

Course assessment Total number of assessed students: 687					
А	B C D E FX				
8.15	20.67	28.97	27.51	12.23	2.47
Provides: Mgr. Marián Kulla, PhD., Mgr. Jozef Bogľarský, Mgr. Patrícia Gurová					
Date of last modification: 29.03.2020					
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.					

University: P. J.	University: P. J. Šafárik University in Košice					
Faculty: Faculty	y of Science					
Course ID: KPI INP/17	E/ <b>Course na</b>	Course name: Inclusive Pedagogy				
Course type, sc Course type: H Recommended Per week: 2 Pe Course metho	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 EC	IS credits: 2		_			
Recommended	semester/trimes	ster of the cours	e: 5.			
<b>Course level:</b> I.						
Prerequisities:						
Conditions for	course completi	on:				
Learning outco	mes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	Course language:					
Notes:						
Course assessment Total number of assessed students: 85						
А	В	С	D	Е	FX	
65.88	25.88 4.71 1.18 2.35 0.0					
Provides: PaedDr. Michal Novocký, PhD.						
Date of last modification: 20.06.2022						
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.						

University: P. J.	Šafárik Univers	ity in Košice			
Faculty: Faculty	of Science				
<b>Course ID:</b> ÚGE ZAE1/18	Course name: International Excursion 1				
Course type, sco Course type: Pr Recommended Per week: Per Course method	pe and the met ractice course-load (h study period: 1 : present	r <b>hod:</b> ours): 10d			
Number of ECT	S credits: 5				
Recommended s	emester/trimes	ster of the cours	e: 4.		
Course level: I.					
Prerequisities:					
Conditions for c	ourse completi	on:			
Learning outcom	nes:				
Brief outline of t	the course:				
Recommended l	iterature:				
Course language	2:				
Notes:					
Course assessme Total number of	ent assessed studen	ts: 22			
A	В	С	D	Е	FX
50.0	18.18 18.18 9.09 4.55 0.0				
Provides: Mgr. L	oránt Pregi, Ph	D.		<u>I</u>	
Date of last mod	ification: 27.06	5.2022			
Approved: doc.	RNDr. Zuzana J	ešková, PhD., pr	of. Mgr. Jaroslav	v Hofierka, PhD.	

University: P. J. Šafá	University: P. J. Šafárik University in Košice				
Faculty: Faculty of S	cience				
<b>Course ID:</b> ÚGE/ ZEX1/21	ourse ID: ÚGE/ Course name: International Excursion 1 EX1/21				
Course type, scope a Course type: Practic Recommended course Per week: Per stud Course method: pre	nd the method: ce rse-load (hours): y period: 10d esent				
Number of ECTS cr	edits: 4				
Recommended seme	ster/trimester of the cours	e: 4.			
Course level: I.					
Prerequisities:					
Conditions for cours	e completion:				
Learning outcomes:					
Brief outline of the c	ourse:				
Recommended litera	Recommended literature:				
Course language:					
Notes:					
Course assessment Total number of asses	ssed students: 11				
	abs	n			
100.0 0.0					
Provides: doc. Mgr. I	Ladislav Novotný, PhD., Mg	r. Loránt Pregi, PhD.			
Date of last modifica	tion: 27.06.2022				
Approved: doc. RND	Dr. Zuzana Ješková, PhD., pr	of. Mgr. Jaroslav Hofierka, PhD.			

Faculty: Faculty of Science         Course ID: ÚFV/       Course name: Introduction to Astronomy         UAS/12       Course name: Introduction to Astronomy
Course ID: ÚFV/ Course name: Introduction to Astronomy
UAS/15
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: 3
Recommended semester/trimester of the course: 4.
Course level: I.
Prerequisities:
<b>Conditions for course completion:</b> To successfully complete the course, the student must demonstrate a sufficient understanding of the basic concept from the field of astronomy and astrophysics. In addition to direct participation in teaching, independent student work is also required within the self-study of topics assigned by the teacher. In order to obtain an assessment and thus also credits, the student must meet the requirements of a continuous written test (with a weight of 30% of the total assessment) and pass an oral exam (with a weight of 70% of the total assessment). Rating scale: A (90-100%), B (80-89%), C (70-79%), D (60-69%), E (50-59%), F (0-49%).
Learning outcomes: After completing the lectures and on the basis of the final evaluation, the student will demonstrate adequate mastery of the content standard of the course, which is defined by a brief syllabus of the course and recommended literature. Theoretical mastery of the content of the subject allows him to understand the subject of the study of astronomy and astrophysics, to orient himself in the study of the solar system, the origin and evolution of stars and galaxies. Based on the acquired knowledge, he / she is able to follow up on specialized courses in the further study of astrophysics
Brief outline of the course:         The time schedule of the course content is updated in the electronic bulletin board of the course.         1. Astronomy as a science         2. Our place in the Universe         3. Basic astronomical terminology         4. Coordinate systems         5. Time and calendar         6. Astronomical telescopes and instruments         7. Sun as a star         8. Planets in the Solar system         9. Asteroids, comets and meteors         10. Creation and evolution of the stars         11. Extrasolar planets         12. Evolution of the Galaxy and the Universe
Recommended literature:

Čeman, R., Pittich, E., 2002, Vesmír 1 - Slnečná sústava, MAPA Slovakia Čeman, R., Pittich, E., 2003, Vesmír 2 - Hviezdy - Galaxie, MAPA Slovakia Grygar, J., Horský, Z., Mayer, P., 1979, Vesmír, Mladá fronta Kleczek, J., 2002, Velká encyklopedie vesmíru, Academia Pittich, E., Kalmančok, D., 1981, Obloha na dlani, Obzor Rothery, A. D., 2018, An Introduction to the Solar System, Cambridge University Press Vanýsek, V.: 1980, Základy astronomie a astrofyziky, Academia Praha

#### **Course language:**

Notes:

## **Course assessment**

Total number of assessed students: 59

А	В	С	D	Е	FX
96.61	1.69	1.69	0.0	0.0	0.0
Drovidas, dag Mar Štafan Darimusha, DhD					

Provides: doc. Mgr. Stefan Parımucha, PhD.

Date of last modification: 21.09.2021

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J. Šafá	árik University in Košice
Faculty: Faculty of S	Science
<b>Course ID:</b> ÚFV/ UVF/05	Course name: Introduction to General Physics
Course type, scope a Course type: Practi Recommended cou Per week: 2 Per stu Course method: pr	and the method: ice irse-load (hours): udy period: 28 esent
Number of ECTS ci	redits: 2
Recommended seme	ester/trimester of the course: 1.
Course level: I.	
Prerequisities:	
Terms and condition -participation in clas -active participation -submitting all the as -tests during the sem Final assessment: -based on assessmen Conditions for succe -participation in less -achieving the level	se completion: s of assessment during the semester ses in accordance with study regulations and teacher's instructions at seminars and exercises ssignments in accordance with teacher's instruction nester at during the semester essful completion of the course: ons in accordance with the study regulations and teacher's instructions higher than 50 % in assessment during the semester and in final assessment
Learning outcomes: By the end of the co physics and thermoo collection, videomea	burse student is able to solve problems connected with mechanics, molecular dynamics. In solving problems student is able to apply digital tools for data assurement and computer modelling and data processing and their analysis.
<ul> <li>Brief outline of the of the course is an aux and Thermodynamic connected with the full full the full thermodynamic connected with the full thermodynamic connected with the full thermodynamic of motion.</li> <li>Caravitational field full thermodynamic full thermodynamic of the full thermodynamic of thermodynamic of the full thermodynamic of the f</li></ul>	<b>course:</b> iliary subject to the course General physics 1 - Mechanics, Molecular Physics es aimed to development of conceptual understanding and problem solving following areas: dynamics of motion along a line and two-dimensional motion of particle. d. Projectile motion. energy. Law of energy conservation. . Equation of rotational motion. n conservation and angular momentum conservation. ok's law.

11. Liquids. Surface tension.

12. Changes of state.

#### **Recommended literature:**

CUMMINGS, Karen, LAWS, Priscilla, REDISH, Edward, COONEY, Patrick: Understanding Physics, John Wiley & Sons, 2004

## **Course language:**

English

Notes:

#### **Course assessment**

Total number of assessed students: 327

А	В	С	D	Е	FX
37.31	20.49	24.16	12.84	4.89	0.31
Provides: doc. RNDr. Zuzana Ješková, PhD.					

Date of last modification: 15.09.2021

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J. Šafá	rik University in Košice					
Faculty: Faculty of S	Faculty: Faculty of Science					
<b>Course ID:</b> ÚFV/ UVF2/07	Course name: Introduction to General Physics II					
Course type, scope a Course type: Practi Recommended cou Per week: 2 Per stu Course method: pro	and the method: ce rse-load (hours): ady period: 28 esent					
Number of ECTS cr	redits: 2					
Recommended seme	ester/trimester of the course: 2.					
Course level: I.						
Prerequisities:						
Conditions for course Terms and conditions -participation in class -active participation -submitting all the as -tests during the sem -based on assessmen Conditions for succe -participation in less -achieving the level I	se completion: s of assessment during the semester ses in accordance with study regulations and teacher's instructions at seminars and exercises signments in accordance with teacher's instruction ester Final assessment: t during the semester ssful completion of the course: ons in accordance with the study regulations and teacher's instructions higher than 50 % in assessment during the semester and in final assessment					
Learning outcomes: By the end of the cou connected with selec	rse student is able to solve problems and explain phemomena and experiments ted areas of Electricity and Magnetism.					
<ul> <li>Brief outline of the of The course is an auxility to development of courses:</li> <li>1. Electric field. Courses:</li> <li>2. Work, electric poteds</li> <li>3. Electric capacitants</li> <li>4. Electric current. O</li> <li>5. Work and power. If</li> <li>6. Magnetic field.</li> <li>7. Interaction betwees</li> <li>8. Transient phenomes</li> <li>9. Electromagnetic in 10. Transient phenomes</li> <li>11. Alternating curres</li> <li>12. Resonance in serting the serting curres</li> </ul>	course: liary subject to the course General physics 2 - Electricity and Magnetism aimed onceptual understanding and problem solving connected with the following lomb's law. ential energy, electric potential. ce and capacitors. bhm's law, Kirchhoff's laws. Energy and efficiency of sources of electromotive force en magnetic field and electric charge. ena in RC circuit. nduction. nena in RL circuit. nt circuits. ies and paralel circuits.					
<b>Recommended liter</b>	ature:					
CUMMINGS, Karen, LAWS, Priscilla, REDISH, Edward, COONEY, Patrick: Understanding						
----------------------------------------------------------------------------------	--					
Course language:						

### English

### Notes:

### **Course assessment**

Total number of assessed students: 270

А	В	С	D	Е	FX
39.26	22.59	20.74	8.15	9.26	0.0
Provides: doc. RNDr. Zuzana Ješková, PhD.					
Date of last modification: 15.09.2021					

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
<b>Course ID:</b> ÚGE/ UGIS/15	Course name: Introduction to Geographic Information Systems
Course type, scope a Course type: Practic Recommended cou Per week: 2 Per stu Course method: pre	ind the method: ce rse-load (hours): idy period: 28 esent
Number of ECTS cr	edits: 3
Recommended seme	ester/trimester of the course: 2.
Course level: I.	
Prerequisities:	
<b>Conditions for cours</b> During the semester assessment is based of From the practical sk least 80 points to get get E. The credits sha practicals or he/she v	<b>be completion:</b> , students will need to hand in the outputs of the practicals. The resulting on the final practical skills verification and delivery of the outputs of practicals. stills verification, students must obtain at least 90 points to get the A mark, at B, at least 70 points to get C, at least 60 points to get D, at least 50 points to all not be granted to a student who does not hand in one or more outputs of the vill get less than 50 points out of 100.
Learning outcomes: The main learning o geodata processing is map layouts.	utcomes include understanding of GIS terminology, practical skills in basic n GIS software. In particular, the skills involve data editing and creation of
Brief outline of the c - Basic GIS termino elements, attribute ta - Basic control eleme adjusting color data l - Prepare and connec - Set the legend (sele - Creating map layou	<b>course:</b> blogy (eg. geodata layer, geodata formats, structure of GIS, graphics map ble, structure of relational databases) ents of GIS software (add and configure a data layer and properties, zooming, ayer, display and basic work with attribute tables) t an external database with the data layer ction of cartographic methods of spatial information) its and advanced graphics tools for creating map layouts
Recommended litera BOLTIŽIAR M. 200 Filozofa v Nitre, Fak BOLTIŽIAR, M. VC Univerzita Konštantí MICHAEL D. KENN Workbook Approach LAW M, COLLINS	<ul> <li>ature:</li> <li>8: Geografické informačné systémy pre geografov I. Univerzita Konštantína ulta Prírodných vied. 120 s.</li> <li>b) JTEK M. 2009. Geografické informačné systémy pre geografov II.</li> <li>na Filozofa v Nitre, Fakulta Prírodných vied. 140 s.</li> <li>b) NEDY. 2013: Introducing Geographic Information Systems with ArcGIS: A to Learning GIS, 3rd Edition. Wiley. 672 p.</li> <li>A. 2013: Getting to Know ArcGIS for Desktop. Edition 3. Esri Press. 768 p.</li> </ul>
Course language:	
Notes:	

Course assessn	nent				
Total number o	f assessed studen	ts: 884			
А	В	С	D	Е	FX
13.91	14.03	25.9	22.85	20.48	2.83
Provides: doc.	Provides: doc. Mgr. Michal Gallay, PhD., doc. RNDr. Ján Kaňuk, PhD.				
Date of last modification: 27.06.2022					
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.					

II	Ŏ - C' -: 1- I I -:				
University: P. J.	University: P. J. Safarik University in Kosice				
Faculty: Faculty	Faculty: Faculty of Science				
<b>Course ID:</b> ÚG UGP/18	E/ Course na	Course name: Introduction to Geography and Planetary Geography			
Course type, sc Course type: I Recommended Per week: 1 / 1 Course metho	ope and the met Lecture / Practice I course-load (h I Per study peri d: present	thod: c ours): od: 14 / 14			
Number of EC	I'S credits: 2				
Recommended	semester/trimes	ster of the cours	e: 1.		
Course level: I.					
Prerequisities:					
Conditions for	course completi	on:			
Learning outco	mes:				
Brief outline of	the course:				
Recommended	literature:				
Course languag	ge:				
Notes:					
Course assessm Total number of	ent f assessed studen	ıts: 448			
А	В	С	D	Е	FX
35.94	27.9	18.08	12.05	5.8	0.22
Provides: prof.	Mgr. Jaroslav Ho	ofierka, PhD., Mg	gr. Štefan Koleča	nský	
Date of last mo	dification: 27.06	5.2022			
Approved: doc.	RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.	

University: P. J	. Šafárik Univers	sity in Košice			
Faculty: Facult	Faculty: Faculty of Science				
Course ID: ÚF ZMF/17	V/ Course na	Course name: Introduction to Mathematics for Physicists			
Course type, sc Course type: 1 Recommended Per week: 1/2 Course metho	cope and the met Lecture / Practice d course-load (h 2 Per study peri d: present	thod: c ours): od: 14 / 28			
Number of EC	TS credits: 3				
Recommended	semester/trimes	ster of the cours	<b>e:</b> 1.		
Course level: I.					
Prerequisities:					
<b>Conditions for</b>	course completi	ion:			
Learning outco	omes:				
Brief outline of	the course:				
Recommended	literature:				
Course languag	ge:				
Notes:					
Course assessm Total number of	nent f assessed studen	its: 287			
А	В	С	D	Е	FX
40.77	21.25	18.47	10.45	8.71	0.35
Provides: RND	r. Tomáš Lučivja	nský, PhD., doc.	RNDr. Jozef Har	nč, PhD.	
Date of last mo	dification: 16.11	.2021			
Approved: doc.	. RNDr. Zuzana J	Ješková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.	

University: P. J. Šafá	rik University in Košice	
Faculty: Faculty of S	cience	
Course ID: Dek. PF UPJŠ/USPV/13	Course name: Introduction	to Study of Sciences
Course type, scope a Course type: Lectur Recommended cour Per week: Per stud Course method: pre	nd the method: re / Practice rse-load (hours): y period: 12s / 3d esent	
Number of ECTS cr	edits: 2	
Recommended seme	ster/trimester of the cours	e: 1
Course level: I.		
Prerequisities:		
Conditions for cours	e completion:	
Learning outcomes:		
Brief outline of the c	ourse:	
Recommended litera	iture:	
Course language:		
Notes:		
Course assessment Total number of asses	ssed students: 2012	
	abs	n
	88.37	11.63
Provides: doc. RNDr	Marián Kireš, PhD.	
Date of last modifica	tion: 30.08.2022	
Approved: doc. RND	r. Zuzana Ješková, PhD., pr	of. Mgr. Jaroslav Hofierka, PhD.

University: P. J	. Šafárik Univers	ity in Košice			
Faculty: Facult	Faculty: Faculty of Science				
Course ID: ÚG UDID/21	E/ Course na	Course name: Introduction to the didactics of geography			
Course type, sc Course type: 1 Recommended Per week: 1 / 2 Course metho	ope and the met Lecture / Practice d course-load (h l Per study peri d: present	thod: c ours): od: 14 / 14			
Number of EC	<b>TS credits:</b> 2				
Recommended	semester/trimes	ster of the cours	<b>e:</b> 6.		
Course level: I.					
Prerequisities:					
Conditions for	course completi	ion:			
Learning outco	omes:				
Brief outline of	the course:				
Recommended	literature:				
Course languag	ge:				
Notes:					
Course assessm Total number of	ent f assessed studen	.ts: 0			
А	В	С	D	Е	FX
0.0	0.0	0.0	0.0	0.0	0.0
Provides: RND	r. Stela Csachová	á, PhD., doc. RN	Dr. Ján Kaňuk, P	hD.	
Date of last mo	dification: 27.06	5.2022			
Approved: doc.	RNDr. Zuzana J	Ješková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.	

University: P. J	. Šafárik Univers	ity in Košice				
Faculty: Facult	y of Science					
Course ID: ÚG LOS/18	E/ Course na	Course name: Linux and open source GIS				
Course type, sc Course type: I Recommended Per week: 2 Pe Course metho	ope and the met Practice I course-load (h er study period: d: present	thod: ours): 28				
Number of EC	<b>FS credits:</b> 3					
Recommended	semester/trimes	ster of the cours	<b>e:</b> 3.			
Course level: I.	, II.					
Prerequisities:						
Conditions for	course completi	on:				
Learning outco	mes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	ge:					
Notes:						
Course assessm Total number of	ent f assessed studen	ts: 64				
А	В	С	D	E	FX	
62.5	34.38	3.13	0.0	0.0	0.0	
<b>Provides:</b> doc. 1 Nováková	Mgr. Michal Gall	ay, PhD., prof. N	/gr. Jaroslav Ho	fierka, PhD., Mgr	: Michaela	
Date of last mo	dification: 30.09	0.2021				
Approved: doc.	RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jarosla	v Hofierka, PhD.		

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚMV/ MTFa/15	Course name: Mathematics I for physicists
Course type, scope a Course type: Lectur Recommended cour Per week: 2 / 2 Per Course method: pre	nd the method: re / Practice rse-load (hours): study period: 28 / 28 esent
Number of ECTS cr	edits: 5
Recommended seme	ster/trimester of the course: 1.
Course level: I.	
Prerequisities:	
<b>Conditions for cours</b> To complete the courterms and the ability is according to the re During the semester, (together 50 points). may write the exam. To number of 30 points. 59-50-D, 49-40-E. If exam test (12 points)	<b>the completion:</b> Irrse, it is necessary to demonstrate the acquirement of basic mathematical to solve problems from selected thematic units. The evaluation of the subject esults from the semester and in view of the results of the written final test. students write tests at all seminars (together 20 points) and two extensive tests It is necessary to obtain at least 28 points during the semester. Then students To pass the exam, it is necessary to obtain at least 12 points from the maximum The scale for student evaluation is as follows: 100-80-A, 79-70-B, 69-60-C, a student does not achieve the required minimal number of points from the and during the semester (together 28 points), he/she is evaluated by FX.
Learning outcomes: After completing the equations and inequa differential and integr	e course, the student can use basic mathematical terms, can solve various nations, and is acquainted with basic mathematical knowledge from the ral calculus, and is able to apply the theory in concrete excercises.
Brief outline of the c Week 1-6: Definition functions. Compositi Week 7-14: Limit of Indefinite integrals, b	ourse: a of function. Domain and range of functions. Elementary functions. Inverse ons of functions. functions. Continuity of functions. Derivation and its geometric aplications. pasic methods of integration. Definite integral and its applications.
Recommended litera Huťka, Benko, Ďurik D. Studenovská, T. M odbory, UPJŠ 2006 D. Studenovská, T. M S. Lang: A First Cour	ature: tovič: Matematika, Alfa, Bratislava 1991 Iadaras, S. Mockovčiak: Zbierka úloh z matematiky pre nematematické Iadaras: Matematika pre nematematické odbory, UPJŠ 2006 rse in Calculus, Springer Verlag, 1998
<b>Course language:</b> Slovak	
Notes:	

Course assessm Total number o	nent f assessed studen	ts: 54			
А	В	С	D	Е	FX
25.93	12.96	29.63	16.67	11.11	3.7
Provides: RND	Provides: RNDr. Jana Borzová, PhD., RNDr. Barbora Klemová, RNDr. Diana Trellová				llová
Date of last mo	Date of last modification: 18.04.2022				
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.					

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of S	Science				
C <b>ourse ID:</b> ÚMV/ MTFb/15	Course name: Mathematics II for physicists				
Course type, scope a Course type: Lectur Recommended cour Per week: 2 / 2 Per Course method: pre	and the method: re / Practice rse-load (hours): study period: 28 / 28 esent				
Number of ECTS cr	edits: 4				
Recommended seme	ester/trimester of the course: 2.				
Course level: I.					
Prerequisities: ÚMV	//MTFa/15				
of a function of severa of a function, different skills associated with Mastering standard p order. Understanding convergence of numb Assessment is given of an oral exam. Ongoing evaluation: Two tests during the Small written tests du Solving homework - Active participation in An exam:	ential of a function, local and global extrema of a function, partial derivation ential of a function, local and global extrema of a function and acquiring h their use in calculations focused mainly on functions of two variables. procedures for solving basic types of ordinary differential equations of the 1st g the concept of infinite series and acquiring skills to use the basic criteria of ber series for deciding on the convergence or divergence of number series. on the basis of a continuous assessment and a written exam, which also includes semester - 32 p. uring the semester - 10 p. 4 p.				

E: 42 p. - 48 p.

#### Learning outcomes:

The student should be able to explain the basic concepts and gain skills in using standard procedures for solving systems of linear equations using matrices and determinants. The student will expand his knowledge of the function of one variable and master the concept of a function of several variables, and will be able to explain the definitions of function limit, partial derivation of a function, differential of a function, local and global extrema of a function and acquire knowledge and skills oriented mainly on the functions of two variables. The student will learn standard procedures for solving basic types of ordinary differential equations of the 1st order. He will be able to use the

acquired knowledge about solving differential equations in modeling and solving problems derived from real situations. The student will gain skills to use the basic criteria of convergence of number series when deciding on the convergence or divergence of number series.

The student will be able to use the acquired knowledge and skills in creating a mathematical model and will learn to effectively use the commands of the mathematical program Maple for routine calculations and visualization for solving created model.

### Brief outline of the course:

1. - 3. Systems of linear equations, matrices, determinants.

4. - 7. Functions of several variables, continuity and limit, partial derivatives, differential, local and global extrema of a function of two variables.

8. - 11. Modeling of relations between quantities using differential equations. Methods for solving ordinary differential equations of the 1st order.

12. - 13. Sequences, infinite number series, convergence criteria of infinite number series, infinite functional series, Taylor series.

### **Recommended literature:**

1. Hughes-Hallett, D., et al.: Applied Calculus. John Wiley & Sons, Inc., 2010.

2. Rogers, R., C.: The Calculus of Several Variables. 2011.

### Course language:

Slovak

Notes:

### Course assessment

Total number of assessed students: 20

А	В	С	D	Е	FX
50.0	20.0	20.0	5.0	5.0	0.0

Provides: doc. RNDr. Stanislav Lukáč, PhD., RNDr. Stanislav Basarik, Mgr. Barbora Hennelová

Date of last modification: 17.09.2021

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J.	. Šafárik Univers	ity in Košice					
Faculty: Faculty	y of Science						
Course ID: ÚG MPG/21	ÚGE/ <b>Course name:</b> Metageography and planetary geography						
Course type, sc Course type: I Recommended Per week: 1 / 1 Course metho	ope and the met Lecture / Practice d course-load (h l Per study perio d: present	thod: ; ours): od: 14 / 14					
Number of EC	<b>ΓS credits:</b> 2						
Recommended	semester/trimes	ster of the cours	<b>e:</b> 1.				
Course level: I.							
Prerequisities:							
Conditions for	course completi	on:					
Learning outco	mes:						
Brief outline of	the course:						
Recommended	literature:						
Course languag	ge:						
Notes:							
Course assessm Total number of	ent f assessed studen	ts: 84					
А	A B C D E FX						
41.67 47.62 5.95 1.19 0.0 3.57							
Provides: prof.	Mgr. Jaroslav Ho	ofierka, PhD., M	gr. Katarína Onad	čillová, PhD.			
Date of last mo	dification: 27.06	5.2022					
Approved: doc.	RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jaroslav	v Hofierka, PhD.			

University: P. J. Šafárik University in Košice
Faculty: Faculty of Science
Course ID: ÚFV/ SDFM1/15Course name: Methods of Data Processing in Physics
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: 3.
Course level: I.
Prerequisities:
Conditions for course completion:
Learning outcomes:
<ul> <li>Brief outline of the course:</li> <li>1. Numerical processes and their errors. Particular properties of computer representation of numerical data. Introduction in Matlab/Octave.</li> <li>2. Approximation and interpolation of a function. Algebraic multinomials. Newton, Lagrange, Hermit and spline interpolation. Selection of interpolation knots.</li> <li>3. Numerical methods for calculation of definite integral – rectangular, trapezoidal, Simpson.</li> <li>4. Numerical of ordinary differential equations – Euler's method and modifications, Runge-Kutta method.</li> <li>6. Approximate solution of non-linear equations. Roots separation, simple iteration and its convergency. Tangent, secant and combined methods.</li> <li>7. Iterative solution of linear system of algebraic equations, Gauss method.</li> <li>8. Linear regression. Regression models, least-square criterion.</li> <li>10. Non-linear regression models.</li> <li>8. Basics of probability theory and mathematical statistics - systematic and random errors, Gaussian distribution, three-sigma rule, central limit theorem.</li> <li>11. Computer simulation of real processes - Monte-Carlo method (principles, random quantities, pseudo-random number generators).</li> <li>12. Simulation of particle transport through solid.</li> </ul>
<ul> <li>Recommended literature:</li> <li>1. Buchanan J. L., Turner P. R.: Numerical Methods and Analysis. McGraw-Hill, Inc., New York, 1992.</li> <li>2. Hrach R.: Počítačová fyzika I,II. Skriptum PF UJEP. Ed. stredisko UJEP, Ústí nad Labem, 2003.</li> <li>3. Petrovič P., Nadrchal J., Petrovičová J.: Programovanie a spracovanie dát I, II. Edičné stredisko UPJŠ, Košice 1989.</li> <li>4. Petrovič P.: Fyzika I – Vybrané kapitoly z klasickej fyziky a počítačovej fyziky. Vydavateľstvo equilibria, Košice, 2009.</li> </ul>

4. Siegel A. F.: Statistics and Data Analysis. An Introduction. J. Wiley&Sons, NY, 1988.

4. Siegel A. F.:	Statistics and Da	ta Analysis. An	Introduction. J. V	Viley&Sons, NY,	1988.		
<b>Course langua</b> slovak, basics	ege: of english						
Notes:							
Course assess Total number of	nent of assessed studen	ts: 4					
А	В	С	D	Е	FX		
50.0	50.0 50.0 0.0 0.0 0.0 0.0						
Provides: doc.	RNDr. Erik Čižm	iár, PhD.	•	•			
Date of last mo	odification: 21.09	0.2021					
Approved: doc	e. RNDr. Zuzana J	lešková, PhD., p	of. Mgr. Jaroslav	v Hofierka, PhD.			

University: P. J. Šafári	k University in Košice
Faculty: Faculty of Sc	ience
Course ID: ÚFV/ MFYU/15	Course name: Methods of Physical Problems Solving
Course type, scope an Course type: Practice Recommended course Per week: 2 Per stud Course method: pres	ad the method: e se-load (hours): ly period: 28 sent
Number of ECTS cre	dits: 2
Recommended semes	ter/trimester of the course: 5.
Course level: I.	
Prerequisities:	
Conditions for course Summary evaluation b 1. Practical ongoing as 2. Active participation absences allowed) and	<b>completion:</b> based on ongoing assessment: ssignments for given topics and their defense (at least 50% needed) n during face-to-face contact learning in classical or virtual classroom (3 during online learning (no absence, uploading all ongoing assignments)
Learning outcomes: The student will gain to 1. overview of qualitato 2. can model a given p nature of the physical 3. can effectively use of	he following knowledge and skills tive, quantitative and experimental methods of solving physical problems hysical problem and apply appropriate methods of solution according to the problem digital technologies on PC, mobile and tablet in solving physical problems.
<b>Brief outline of the co</b> Introduction to the sub 1. Overview of approa Qualitative approaches 2. Simple thought mod 3. Dimensional analys 4. Application of symm 5. Graphic methods Experiment and digita 6. Animations and sim (Geogebra, Phet, Worl 7. Video analysis (Trac 8. Computer-aided, res Quantitative approach 9. Models in the form 10. Symbolic and num More advanced approa 11. Qualitative approa	urse: iject ches, methods and means, sources of physical problems, competitions s in solving leling and Fermi estimates, is, scaling netry and conservation laws l technologies in solving uple simulations cbench, Physlets) cker), iconographic modeling (VnR, Coach) mote and virtual experiments (PC, tablet, mobile) es in solving of differential equations - computer modeling (Sage, Jupyter) herical solutions (Sage, Jupyter), aches to solutions ch through the theory of dynamical systems ches (Lagrange, Hamilton)

13. 2D and 3D visualization and verification of solutions using a computer (Sage, Vpython)

### **Recommended literature:**

1. Halliday, D., Resnick, R., Walker, J.: Fyzika 1-5, Akademické nakladatelství, VUTIUM, ISBN: 8021418680, 2007

2. Moore, T. A. Six Ideas that Shaped Physics: Units C, N, R, E, Q, T. 3rd ed., McGraw-Hill, Boston, 2017, http://www.physics.pomona.edu/sixideas/

3. Mahajan, S. The Art of Insight in Science and Engineering: Mastering Complexity. MIT Press, Boston, 2014.

4. Weinstein, L. Guesstimation: Solving Today's Problems on the Back of a Napkin. Princeton University Press Princeton, 2012.

5. Morin, D. Introduction to Classical Mechanics: With Problems and Solutions. Cambridge University Press. 2008

6. current information from web sites related to collections of physics problems and competitions, digital technologies for problem solving

### **Course language:**

Slovak, English

### Notes:

### **Course assessment**

Total number of assessed students: 11

А	В	С	D	Е	FX
81.82	9.09	9.09	0.0	0.0	0.0

Provides: doc. RNDr. Jozef Hanč, PhD.

Date of last modification: 27.01.2022

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J	. Šafárik Univers	ity in Košice					
Faculty: Facult	y of Science			_			
<b>Course ID:</b> ÚG HGV/21	ourse ID: ÚGE/ GV/21Course name: Methods of human geographical research						
Course type, sc Course type: I Recommended Per week: 3 Pe Course metho	ope and the met Practice d course-load (h er study period: d: present	thod: ours): 42					
Number of EC	<b>TS credits:</b> 3						
Recommended	semester/trimes	ster of the cours	<b>e:</b> 6.				
Course level: I.							
Prerequisities:							
Conditions for	course completi	on:					
Learning outco	mes:						
Brief outline of	the course:						
Recommended	literature:						
Course languag	ge:						
Notes:							
Course assessm Total number of	<b>ent</b> f assessed studen	.ts: 3					
А	A B C D E FX						
100.0	100.0 0.0 0.0 0.0 0.0 0.0						
<b>Provides:</b> RND Dická, PhD., do	r. Stela Csachová c. Mgr. Ladislav	á, PhD., Mgr. Ma Novotný, PhD.	rián Kulla, PhD.	, RNDr. Janetta N	Jestorová-		
Date of last mo	dification: 27.06	5.2022					
Approved: doc.	RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jaroslav	v Hofierka, PhD.			

		,					
University: P. J.	Šafárik Univers	sity in Košice					
Faculty: Faculty	of Science						
<b>Course ID:</b> ÚG FGV/21	E/ Course name: Methods of physical geographical research						
Course type, sc Course type: F Recommended Per week: 3 Pe Course method	ope and the met tractice course-load (h er study period: l: present	thod: ours): 42					
Number of ECT	S credits: 3						
Recommended	semester/trimes	ster of the cours	<b>e:</b> 5.				
Course level: I.							
Prerequisities:							
Conditions for a	course completi	on:					
Learning outco	mes:						
Brief outline of	the course:						
Recommended	literature:						
Course languag	e:						
Notes:							
Course assessm Total number of	ent assessed studen	ıts: 2					
А	В	С	D	E	FX		
100.0	0.0	0.0	0.0	0.0	0.0		
<b>Provides:</b> RNDi PhD.	. Dušan Barabas	s, CSc., RNDr. A	lena Gessert, Ph	D., doc. Ing. Kata	arína Bónová,		
Date of last mo	lification: 27.06	5.2022					
Approved: doc.	RNDr. Zuzana J	Ješková, PhD., pr	of. Mgr. Jarosla	v Hofierka, PhD.			

University: P. J. Šafárik University in Košice						
Faculty: Faculty of S	Faculty: Faculty of Science					
<b>Course ID:</b> ÚGE/ MTK/21	Course name: Methods of thematic cartography					
Course type, scope a Course type: Practi Recommended cou Per week: 2 Per stu Course method: pre	and the method: ce rse-load (hours): ady period: 28 esent					
Number of ECTS cr	redits: 3					
Recommended semester/trimester of the course: 2.						
Course level: I.						

Prerequisities:

#### **Conditions for course completion:**

The evaluation is based on the submitted assignments from the exercises.

Exercises are realized in the form of regular teaching, the introduction of the exercise is devoted to the theoretical basis, followed by the practical part of the exercise, which aims to work with spatial data in order to create a thematic map. During the semester, students will receive assignments aimed at creating a thematic map using selected methods of thematic cartography. Students submit assignments on an ongoing basis. Each assignment is evaluated separately. In order for the assignment to be accepted, it is necessary to obtain a minimum grade E from each assignment. The final evaluation is the average of the evaluation of individual assignments. Credits will be awarded only to a student who achieves a grade of at least E in the overall evaluation. Rating scale: A (100-91%), B (81-90%,) C (71-80%), D (61-70 %), E (51-60%).

#### Learning outcomes:

Knowledge: The student will gain knowledge and skills from thematic cartography. They will get acquainted with the theoretical aspects of the content and principles of creating thematic maps. He will gain theoretical foundations and an overview of various aspects of thematic cartography, such as color theory in cartography, types of scales and division of the statistical file into intervals. They will get acquainted with the means of expression cartographic and methods of thematic cartography and gain an overview of the use of dynamic elements of cartographic visualization. Skills: The student will learn to create thematic maps using GIS professionally and cartographically correctly. Can evaluate the suitability of the cartographic method for the representation of various geographical phenomena and determine the optimal procedure for creating thematic maps. Competences: The student is able to evaluate the thematic maps and the suitability of the methods of thematic cartography with a high degree of independence. He will get acquainted with professional terminology in the field of thematic cartography of geodesy, geoinformatics and cartography.

#### Brief outline of the course:

Exercises: Introduction to thematic cartography (content and types of thematic maps, phases and principles of creating thematic maps, compiling the content of the thematic map); Means of expression; Colors in maps; Scales (data evaluation, division of scales, creation of interval and

functional scales, methods for plotting extremes in a statistical file); Legend of thematic maps; Point character method; Line character method; Area character method; Comma method; Isolinia method; Cartographs and cartograms method; Cartographic anamorphosis and cartotypogram method; methods for expressing the dynamics of spatial phenomena; Description in maps; composition of thematic maps; Geospatial data topology control and map generalization. Evaluation of maps and atlases; Animations, interactive maps and virtual reality in cartography.

### **Recommended literature:**

VOŽENÍLEK, V. (2005). Cartography for GIS: geovisualization and map communication. Olomouc, Vydavatelství UP.

KRAAK, M.J., ORMELING, F. (2003). Cartography. Visualization of Geospatial Data. Harlow. Prentice Hall, Pearson Education.

PETERSON, M. P. ET AL. (1995). Interactive and Animated Cartography. Upper Saddle River Prentice Hall.

VOŽENÍLEK, V., KAŇOK, J. A KOL. (2012). Metody tematické kartografie: vizualizace prostorových informací. Olomouc, Univerzita Palackého v Olomouci.

SLOCUM, T.A. ET AL. (2002). Thematic Cartography and Visualization. Upper Saddle River, Pearson/Prentice Hall.

### Course language:

### Notes:

### **Course assessment**

Total number of assessed students: 10

А	В	С	D	Е	FX		
70.0	20.0	0.0	0.0	0.0	10.0		
Provides: doc. RNDr. Ján Kaňuk, PhD., Mgr. Jozef Šupinský, PhD.							
Date of last modification: 27.06.2022							

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
<b>Course ID:</b> ÚGE/ MIK/15	Course name: Microgeography
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: ce rse-load (hours): dy period: 28 esent
Number of ECTS cr	edits: 3
Recommended seme	ster/trimester of the course:
Course level: I.	
Prerequisities:	
Conditions for course Elaboration and press passing a final test w The course consists of with the basic knowled demonstrates indeper	e completion: entation of a semester work with a weight of 70% of the total evaluation, with a success rate of over 50% and a weight of 30% of the total evaluation. of theoretical and practical part. In the theoretical part, students are presented edge necessary to master the practical part - semester work, which the student indent mastery of the issue.
<b>Learning outcomes:</b> Ability to analyze ar administration, self-g	nd synthesize a selected micro-region (local country) for the needs of state government and teaching practice.
<b>Brief outline of the c</b> 1. Theory and method 2. Historical develope 3 4. Differentiation geography (location a - soils - flora - fauna) 5 6. Differentiation geography (population 7. Presentation of the 8. Regionalization; m microregions in the K 9 10. Application government and teach 11. Presentation II. pa 12. Final test 13. Final evaluation	ourse: dology of the subject, object and subject of microgeography. ment and present of microgeography; genius loci, identity with territory of the landscape sphere on the example of a selected microregion I physical and delimitation of the area - geological conditions - relief - climate - water of the landscape sphere on the example of a selected microregion II human on - settlement structure - production sphere - non-production sphere). first part of the semester work - physical geography nicroregional associations of municipalities, local action groups, examples of Košice region of knowledge of microgeography in practice (in state administration, self- hing practice), arts of semester work - human geography
Recommended litera DUBCOVÁ, A. 2012	i <b>ture:</b> 2: Mikrogeografia – krajina okolo nás, UKF Nitra, 185 s.

HASPROVÁ, M. 2006: Geografia miestnej krajiny v edukačnom procese, UKF Nitra, 203 s. KANDRÁČOVÁ, V., MICHAELI, E. 1996: Mikrogeografia v edukácii, výskume a pre prax. In: Krajina východného Slovenska v odborných a vedeckých prácach. Prešov: KGG PdF UPJŠ, 1997, s. 265 – 285

KROPILÁK, M. (ed.) 1977: Vlastivedný slovník obcí na Slovensku I. 1. vyd. Bratislava : Veda, 526 s.

KROPILÁK, M. (ed.) 1977: Vlastivedný slovník obcí na Slovensku II. 1. vyd. Bratislava : Veda, 517 s.

KROPILÁK, M. (ed.) 1978: Vlastivedný slovník obcí na Slovensku III. 1. vyd. Bratislava : Veda, 532 s.

LUKNIŠ, M., 1977: Geografia krajiny Jura pri Bratislave. UK, Bratislava. 211 s. Ďalšia literatúra podľa zvoleného územia

### Course language:

Slovak

Notes:

### **Course assessment**

Total number of assessed students: 91

А	В	С	D	Е	FX
41.76	41.76	14.29	2.2	0.0	0.0

Provides: Mgr. Imrich Sládek, PhD.

Date of last modification: 28.08.2020

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J.	Šafárik Univers	ity in Košice			
Faculty: Faculty	of Science				
<b>Course ID:</b> ÚG MKR/21	E/ Course na	me: Microgeogi	raphy		
Course type, sco Course type: P Recommended Per week: 2 Pe Course method	ppe and the met ractice course-load (h r study period: l: present	thod: ours): 28			
Number of EC	S credits: 3		6		
Recommended	semester/trimes	ster of the cours	<b>e:</b> 6.	=	
Course level: 1.					
Prerequisities:					
Conditions for o	course completi	on:			
Learning outco	mes:				
Brief outline of	the course:				
Recommended	literature:				
Course languag	e:				
Notes:					
Course assessm Total number of	ent assessed studen	ts: 2			
A	В	С	D	Е	FX
0.0	100.0	0.0	0.0	0.0	0.0
Provides: Mgr.	mrich Sládek, P	hD.		1	
Date of last mo	lification: 27.06	5.2022			
Approved: doc.	RNDr. Zuzana J	ešková, PhD., pr	of. Mgr. Jaroslav	v Hofierka, PhD.	

University: P. J	. Šafárik Univers	sity in Košice					
Faculty: Facult	y of Science						
Course ID: ÚGE/ NSGE/15Course name: Mineral Resources - geological and environmental relations							
Course type, sc Course type: I Recommended Per week: 2 / 2 Course metho	ope and the met Lecture / Practice d course-load (h l Per study peri d: present	thod: c ours): od: 28 / 14					
Number of EC	I'S credits: 4						
Recommended	semester/trimes	ster of the cours	<b>e:</b> 6.				
<b>Course level:</b> I.							
Prerequisities:							
Conditions for	course completi	on:					
Learning outco	omes:						
Brief outline of	the course:						
Recommended	literature:						
Course languag	ge:						
Notes:							
Course assessm Total number of	<b>ent</b> f assessed studen	ts: 142					
А	В	С	D	Е	FX		
43.66	43.66 25.35 19.01 9.15 0.7 2.11						
Provides: doc. ]	Ing. Katarína Bói	nová, PhD.			1		
Date of last mo	dification: 30.09	9.2021					
Approved: doc.	. RNDr. Zuzana J	Ješková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.			

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚFV/ MTFM/20	Course name: Modern Trends in Physics
Course type, scope a Course type: Lectur Recommended cour Per week: 2 Per stu Course method: pre	nd the method: re rse-load (hours): dy period: 28 esent
Number of ECTS cr	edits: 2
Recommended seme	ster/trimester of the course: 4.
Course level: I.	
Prerequisities:	
<b>Conditions for cours</b> To successfully comp a sufficient understan elaboration of semes processing and prese Credit assessment tal credits). Rating scale complied with 100-50 failed 49-0	<b>be completion:</b> blete the course (full-time, if necessary distance), the student must demonstrate ding of the basic concepts and laws of physics, which were focused on lectures, ster work on specified topics and successful oral examination and written ntation of one topic, which is in the content of the subject. kes into account the scope of teaching (2 hours of lectures and self-study 2 0
Learning outcomes: After completing the parts of physics that I	e lectures and exercises, the student will have sufficient knowledge of those have been included in the content of lectures.
Brief outline of the c Week 1-3: Selected la Week 4-6: Selected la Weeks 7-9: Selected Week 10-12: Selected Week 1314: Present	ourse: ectures in theoretical physics and astrophysics ectures in nuclear physics lectures in biophysics d lectures on condensed matter physics tation of students' work and discussion.
<b>Recommended litera</b> The literature is spec	iture: ified at the beginning of the semester according to selected topics.
Course language: english	
Notes: Presence form repres using MS Teams.	ents a standart form for the course, if a need arises, the course is performed

Course assessment Total number of assessed students: 16					
abs n					
100.0 0.0					
Provides: prof. RNDr. Peter Kollár, DrSc.	·				
Date of last modification: 22.11.2021					
Approved: doc. RNDr. Zuzana Ješková, PhD., p	rof. Mgr. Jaroslav Hofierka, PhD.				

University: P. J	. Šafárik Univers	sity in Košice					
Faculty: Facult	y of Science						
Course ID: KPE/ MMKV/17Course name: Multiculturalism and Multicultural Education							
Course type, sc Course type: 1 Recommended Per week: 2 P Course metho	cope and the met Practice d course-load (h er study period: d: present	thod: ours): 28					
Number of EC	TS credits: 2						
Recommended	semester/trimes	ster of the cours	<b>e:</b> 4.				
Course level: I.							
Prerequisities:							
<b>Conditions for</b>	course completi	on:					
Learning outco	omes:						
Brief outline of	the course:						
Recommended	literature:						
Course languag	ge:						
Notes:				_			
Course assessm Total number o	nent f assessed studen	ts: 191					
А	В	С	D	Е	FX		
41.88	41.88 42.93 13.61 1.05 0.52 0.0						
Provides: PaedDr. Michal Novocký, PhD.							
Date of last mo	dification: 20.06	5.2022					
Approved: doc.	. RNDr. Zuzana J	Ješková, PhD., pr	of. Mgr. Jaroslav	v Hofierka, PhD.			

University: P. J.	Šafárik Univers	ity in Košice					
Faculty: Faculty	y of Science						
<b>Course ID:</b> KPI Pg/15	Course ID: KPE/ Pg/15Course name: Pedagogy						
Course type, sc Course type: I Recommended Per week: 2 Pe Course method	ope and the met Lecture I course-load (h er study period: d: present	<b>thod:</b> ours): 28					
Number of EC	IS credits: 2		2.5				
Recommended	semester/trimes	ster of the cours	e: 3., 5.				
Course level: I.							
Prerequisities:							
Conditions for	course completi	ion:					
Learning outco	mes:						
Brief outline of	the course:						
Recommended	literature:						
Course languag	ge:						
Notes:							
Course assessm Total number of	ent f assessed studen	its: 961					
А	В	С	D	Е	FX		
23.1 29.24 23.41 13.84 8.84 1.56							
Provides: PaedDr. Michal Novocký, PhD.							
Date of last mo	dification: 20.06	5.2022					
Approved: doc.	RNDr. Zuzana J	Ješková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.			

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of S	cience				
<b>Course ID:</b> ÚGE/ EXF/21	Course ID: ÚGE/ EXF/21 Course name: Physical Geography Excursion				
Course type, scope a Course type: Practic Recommended cour Per week: Per stud Course method: pre	nd the method: ce rse-load (hours): ly period: 6d esent				
Number of ECTS cr	edits: 3				
Recommended seme	ster/trimester of the cours	e: 4.			
Course level: I.					
Prerequisities:					
Conditions for cours	e completion:				
Learning outcomes:					
Brief outline of the c	ourse:				
Recommended litera	iture:				
Course language:					
Notes:					
Course assessment Total number of asses	ssed students: 4				
	abs n				
100.0 0.0					
Provides: RNDr. Duš	an Barabas, CSc., RNDr. A	ena Gessert, PhD.			
Date of last modifica	tion: 27.06.2022				
Approved: doc. RND	Dr. Zuzana Ješková, PhD., pr	of. Mgr. Jaroslav Hofierka, PhD.			

University: P. J.	. Šafárik Univers	ity in Košice				
Faculty: Faculty	y of Science					
Course ID: ÚGE/ EXFG/15Course name: Physical Geography Excursion						
Course type, sc Course type: I Recommended Per week: Per Course metho	ope and the met Practice d course-load (h r study period: ( d: present	<b>thod:</b> ours): 6d				
Number of EC	IS credits: 3					
Recommended	semester/trimes	ster of the cours	<b>e:</b> 4.			
<b>Course level:</b> I.						
Prerequisities:						
Conditions for	course completi	on:				
Learning outco	mes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	ge:					
Notes:						
<b>Course assessm</b> Total number of	ent f assessed studen	its: 798				
А	В	С	D	Е	FX	
88.85 8.9 1.13 0.13 0.38 0.63						
Provides: RNDr. Dušan Barabas, CSc., RNDr. Alena Gessert, PhD.						
Date of last mo	dification: 19.08	3.2020				
Approved: doc.	RNDr. Zuzana .	lešková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.		

University: P. J.	. Šafárik Univers	ity in Košice				
Faculty: Faculty	y of Science					
Course ID: ÚGE/ FGS/15Course name: Physical Geography of Slovakia						
Course type, sc Course type: I Recommended Per week: 2 / 1 Course metho	ope and the met Lecture / Practice d course-load (h Per study peri d: present	thod: ours): od: 28 / 14				
Number of EC	IS credits: 5		~			
Recommended	semester/trimes	ster of the cours	e: 5.			
Course level: 1.						
Prerequisities:						
Conditions for	course completi	on:				
Learning outco	mes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	ge:					
Notes:						
Course assessm Total number of	ent f assessed studen	ts: 544				
А	В	С	D	Е	FX	
20.4 28.68 30.88 13.24 3.86 2.94						
Provides: RNDr. Alena Gessert, PhD., Mgr. Jozef Šupinský, PhD.						
Date of last mo	dification: 28.09	9.2021				
Approved: doc.	RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.		

University: P. J.	Šafárik Univers	ity in Košice				
Faculty: Faculty	y of Science					
Course ID: ÚG FGS1/21	Course ID: ÚGE/ FGS1/21Course name: Physical Geography of Slovakia					
Course type, sc Course type: L Recommended Per week: 2 / 1 Course method	ope and the met Lecture / Practice I course-load (h Per study peri d: present	thod: ; ours): od: 28 / 14				
Number of EC	S credits: 5		4			
Recommended	semester/trimes	ster of the cours	e: 4.			
Course level: 1.						
Prerequisities:						
Conditions for	course completi	on:				
Learning outco	mes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	ge:					
Notes:						
Course assessm Total number of	ent f assessed studen	ts: 33				
А	В	С	D	Е	FX	
27.27 27.27 33.33 6.06 0.0 6.06						
Provides: RND	r. Alena Gessert,	PhD., doc. RND	r. Ján Kaňuk, Ph	D.	•	
Date of last mo	dification: 14.02	2.2023				
Approved: doc.	RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.		

University: P. J. Šafárik University in Košice						
Faculty: Faculty of Science						
Course ID: ÚGE/ FYG1/18Course name: Physical geography 1						
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 1 Per study period: 42 / 14 Course method: present						
Number of ECTS credits: 6						
Recommended semester/trimester of the course: 3.						
Course level: 1.						
Conditions for course completion:						
Learning outcomes:						
Hydrology of the running water, genesis and development of river basins, measuring of water and its flow. Genesis and the main types of lakes, temperatures, water movements. Sea and water currents, its chemical properties, relief of the sea-floor. Subsurface waters, glaciers. In the section of soil science and soil geography, physical and chemical nature of soils will be treated as well as actual and presently used systems of the soil classification. Distribution of different soil types in the world and Slovakia, principles of the soil zonality.						
Recommended literature:						
Course language:						
Notes:						
Course assessment Total number of assessed students: 767						
A B C D E FX						
2.35 5.61 21.12 27.25 36.25 7.43						
<b>Provides:</b> RNDr. Dušan Barabas, CSc., RNDr. Alena Gessert, PhD., Mgr. Imrich Sládek, PhD., Mgr. Ján Šašak, PhD.						
Date of last modification: 19.08.2020						
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.						

University: P. J	. Šafárik Univers	sity in Košice						
Faculty: Facult	y of Science							
Course ID: ÚG FYG2/05	<b>D:</b> ÚGE/ <b>Course name:</b> Physical geography 2							
Course type, sc Course type: 1 Recommended Per week: 3 / Course metho	Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 1 Per study period: 42 / 14 Course method: present							
Number of EC	TS credits: 5							
Recommended	semester/trime	ster of the cours	<b>e:</b> 4.					
Course level: I.								
Prerequisities:								
Conditions for	course complet	ion:						
Learning outco	omes:							
<ul> <li>Brief outline of the course: Atmosphere:</li> <li>1. Introduction to the study of meteorology and climatology (basic terms and definitions, history of meteorology and climatology in the world and in Slovakia, methods of obtaining data on weather and climate)</li> <li>2. Atmosphere (composition and vertical division of the atmosphere, temperature and radiation balance)</li> <li>3. Meteorological elements (solar radiation, air temperature, water in the atmosphere - air humidity, air pressure, air flow - wind)</li> <li>4. Global atmospheric circulation (tropical and mimotropic circulation, air masses and atmospheric fronts)</li> <li>5. Global climate (Earth's climate system, climate classifications in the world and in Slovakia)</li> <li>6. Climate change (climate change in the geological history of the Earth, current climate change)</li> <li>In the study of biogeography we will focus on the biosphere as a part of the physical-geographic sphere. Further focus will be put on the function and position of organisms on the surface, as well as the main regularities of their distribution throughout the world. Phytogeographical and zoogeographical regions of the world and Slovakia. In the practical part students acquaint with the</li> </ul>								
Recommended literature:								
Course language:								
Notes:								
Course assessm Total number o	nent f assessed studer	nts: 717						
А	В	С	D	Е	FX			
28.17	27.62	26.08	11.44	6.14	0.56			

Provides: RNDr. Alena Gessert, PhD., Mgr. Imrich Sládek, PhD., RNDr. Dušan Barabas, CSc.

Date of last modification: 01.02.2022

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.
University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚFV/ ZFP1a/03	Course name: Physics Practical I
Course type, scope a Course type: Practic Recommended cour Per week: 3 Per stu Course method: pre	nd the method: ce rse-load (hours): dy period: 42 esent
Number of ECTS cr	edits: 3
Recommended seme	ster/trimester of the course: 2.
Course level: I.	
Prerequisities:	
<b>Conditions for cours</b> The active work durin Vindication of report	e completion: ng semester and hand in all reports. s.
<b>Learning outcomes:</b> Developing proper la	boratory habits, skills and verify their theoretical knowledge.
Brief outline of the c The goal of this labo with kinds and calcu results. The students introductory physics Laboratory assignme 1. Density measurem 2. Radius measureme	ourse: pratory exercises is to familiarize the students with measurement methods, lus of mistakes, with measured results processing, and with presentation of gain practical skills, and verify their theoretical knowledge of first semester course. They develop proper laboratory habits. nt: ents of liquids and solids. ents of spherical cap. Measurements of
surface using planing 3. Gravitational accel	eration measurements using mathematical
4. Moment of inertia pendulum.	m. measurement using physical and torsion
<ul><li>5. Measurements of Y</li><li>6. Measurement of co</li><li>7. Measurement of th</li><li>8. Measurements of g</li></ul>	Young's modulus. Defficient of viscosity. The speed of sound. General gas constant and Boltzmann constant.
9. Measurements of t 10. Measurements of 11. Measurement of t	hermal expansivity of air. thermal capacity of matter. he surface tension.
Recommended litera Degro, J., Ješková, Z measurements I), Ed. Standards STN ISO 3 standards in Bratislav	<ul> <li>ture:</li> <li>., Onderová, Ľ., Kireš, M.: Základné fyzikálne praktikum I. (Basic physical PF UPJŠ Košice 2007.</li> <li>31. Slovenský inštitút normalizácie v Bratislave (Slovak institute of technical va),1997.</li> </ul>

Ješková, Z.: Computer based experiments in thermodynamics using IP COACH,ed. PF UPJŠ in Košice, 2004.

Course language:							
Notes:	Notes:						
Course assessment Total number of assessed students: 275							
А	В	С	D	Е	FX		
57.45	25.82	12.73	3.27	0.73	0.0		
<b>Provides:</b> doc. RNDr. Adriana Zeleňáková, PhD., doc. RNDr. Marián Kireš, PhD., doc. RNDr. Ján Füzer, PhD., doc. RNDr. Jozef Hanč, PhD.							
Date of last modification: 29.03.2020							
Approved: doc	. RNDr. Zuzana J	ešková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.			

University: P. J. Šafá	rik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/	Course name: Physics Practical II
ZFP1b/03	

Course type, scope and the method: Course type: Practice 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: 3.

Course level: I.

**Prerequisities:** ÚFV/ZFP1a/03

#### **Conditions for course completion:**

To successfully complete the course, the student must measure at least 11 experimental tasks, process and analyze the measured results and evaluate the experimental results in the form of a protocol.

The condition for the implementation of another experimental task is the submission of a protocol from the previous exercise.

The condition for the implementation of the practical task is sufficient theoretical training at home. If the student is not ready for the task in advance, the teacher can send him home and the student must replace the exercise at another time.

The credit evaluation of the course takes into account the following student workload:

1 credit: self-study of recommended literature and subsequent direct teaching

1 credits: realization of experimental exercise and subsequent defense of measuring procedure - it is obligatory to complete all practical tasks in the semester,

1 credit: elaboration and submission of protocols from measurements, which are evaluated.

#### Learning outcomes:

By completing the course, the student will get acquainted with selected physical experiments in the field of electricity and magnetism and supplement the theoretical knowledge acquired in the course General Physics in a practical way.

The result of education is:

a) Complementing and summarizing knowledge and experimental skills in the field of electricity and magnetism.

b) Gaining practical experience with recording, analysis and interpretation of experimental data from practical measurements.

c) Gaining experience with the presentation of experimental results in the form of a measurement protocol.

### Brief outline of the course:

Students on practical exercises are working in pairs experimental tasks in the field of electrical, electromagnetic and magnetic properties of matters.

1. Electrical Resistivity

2. Self - and Mutual Inductance and Capacity

- 3. Serial and Parallel Resonance
- 4. Thermal Dependence of Selected Electrical Phenomena in Solids
- 5. The Characteristics of Semiconductor Diod
- 6. The Characteristics of Semiconductor Bipolar Transistor
- 7. Magnetic Hysteresis
- 8. Hall Constant Measurements
- 9. Measurements of Horizontal Component of Earth Magnetic Field
- 10. Measuring characteristics of switching components
- 11. Measuring the properties of optoelectronic components
- 12. Electric current in liquids and electrolysis

### **Recommended literature:**

- 1. Tumanski S, Handbook of magnetic measurements, CRC press, 2011.
- 2. Fiorillo F, Characterization and Measurement of Magnetic Materials, Elsevier, 2004.

### Course language:

english

### Notes:

Teaching is carried out in person. If necessary, part of the teaching can be realized remotely using the MS Teams or BBB tool. At the beginning of the semester, the teacher sets the conditions for completing and mastering the course.

### **Course assessment**

Total number of assessed students: 249

А	В	С	D	Е	FX	
66.27	19.68	12.05	1.61	0.0	0.4	
Provides: doc. RNDr. Adriana Zeleňáková, PhD., doc. RNDr. Ján Füzer, PhD.						
Date of last modification: 30.09.2021						

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J. Šafárik University in Košice							
Faculty: Faculty of Science							
Course ID: ÚFV/ ZFP1c/14Course name: Physics Practica	1 III						
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 3 Per study period: 42 Course method: present							
Number of ECTS credits: 3							
<b>Recommended semester/trimester of the course:</b> 4.							
Course level: I.							
Prerequisities:							
<b>Conditions for course completion:</b> Measurements of experimental tasks, their evaluation is defended. As a part of evaluation there is is also a good of the task.	in the form l theoretica	of a written report I preparation for th	, which must be ne measurement				
<b>Learning outcomes:</b> To gain some physical inside into some of the concep practice in data collection, analysis and interpretation report writing presentation and results.	<b>Learning outcomes:</b> To gain some physical inside into some of the concepts presented in the lectures. b. To gain some practice in data collection, analysis and interpretation of resumance. c. To gain experience and report writing presentation and results.						
<b>Brief outline of the course:</b> Oscilations. Pendulum. Composition and decomposit sound. Refractive index. Lense's focal length. Interfer of waves. Polarization. The speed of light. Quantum of	ion of oscil rence. Diffr optics.	lations. Resonance action. Diffraction	e. The speed of n and reflection				
Recommended literature: Degro,J., Ješková, Z., Onderová,Ľ., Kireš,M.: Základné fyzikálne praktikum I, PF UPJŠ Košice, 2006 P. Kollár a kol. Základné fyzikálne praktikum II, PF UPJŠ Košice, 2006 J. Brož Základy fysikálních měření, SPN Praha, 1981							
Course language: slovak, english							
Notes:							
Course assessment Total number of assessed students: 94							
A B C	D	E	FX				
68.09 19.15 7.45	2.13	3.19	0.0				
Provides: doc. RNDr. Marián Kireš, PhD., doc. RNDr	Provides: doc. RNDr. Marián Kireš, PhD., doc. RNDr. Ján Füzer, PhD.						
Date of last modification: 01.02.2022							

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚFV/ ZFP1d/14	Course name: Physics Practical IV
Course type, scope a Course type: Practic Recommended cou Per week: 3 Per stu Course method: pre	nd the method: ce rse-load (hours): dy period: 42 esent
Number of ECTS cr	edits: 3
Recommended seme	ster/trimester of the course: 5.
Course level: I.	
Prerequisities:	
Conditions for course - a check of the theore - tests for tasks no. 2 and detectors, each te - measurement of task - the overall evaluation	e completion: etical preparation for measuring the given task (2x), 4,5,6,8, tests from the theoretical part - basic characteristics of radiation est with a minimum success rate of 51%, ks, elaboration and submission of protocols of measured tasks on is the sum of the evaluations of the individual tasks
Learning outcomes: The student will acquionizing radiation an and Nuclear Physics.	uire knowledge and practical skills about the registration of various types of d verify the knowledge acquired in the subject General Physics IV - Atomic
Brief outline of the c 1. Introduction to me 2. Dosimetry measur 3. Statistic distribution 4. Measurement time 5. Absorption of beta 6. Backward scatterin 7. Scintillation gamm 8. Emulsion detector 9. Franck Hertz expe 10. Beta - spectrosco 11. Energy dependen 12. MEDIPIX. 13. Interaction of pho	ourse:         asurements.         ements.         on of measured quantities.         scale selection.         . rays.         ng of beta rays.         na spectrometer.         riment.         py.         ce of the gamma-absorption coefficient.
Recommended litera 1. J.Vrláková, S.Voka dostupné na http://www.upjs.sk/p	i <b>ture:</b> il: Základné fyzikálne praktikum III, skriptá PF UPJŠ, Košice, 2012, ublic/media/5596/Zakladne-fyzikalne-praktikum-III.pdf

Course language: slovak						
Notes:						
Course assessment Total number of assessed students: 95						
А	В	С	D	Е	FX	
83.16	8.42	5.26	3.16	0.0	0.0	
Provides: doc. RNDr. Janka Vrláková, PhD., doc. RNDr. Adela Kravčáková, PhD.						
Date of last modification: 23.08.2022						
Approved: doc	. RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.		

University: P. J	University: P. J. Šafárik University in Košice							
Faculty: Facult	y of Science							
<b>Course ID:</b> ÚF FDE/15	D: ÚFV/ Course name: Physics in Demonstration Experiments							
Course type, sc Course type: 1 Recommended Per week: 2 Pe Course metho	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 EC	TS credits: 2							
Recommended	semester/trime	ster of the cours	<b>e:</b> 3.					
Course level: I.								
Prerequisities:								
<b>Conditions for</b> Seminar work -	<b>course complet</b> - a project dealin	<b>ion:</b> g with hands-on	experiments and	l their role in Phy	vsics teachig.			
Learning outco The goal of the through demons	mes: course is to get b strational physic	better the understa al experiments.	anding of basic J	physical concepts	and phenomena			
<b>Brief outline of</b> The course is a with the help of subject Introduc	the course: imed at the cond selected demon ctory physics and	ceptual understar strational experin d their realization	iding of basic p nents. The exper is based on stud	hysical concepts riments concern t dents' active part	and phenomena he content of the icipation.			
Recommended 1. D.Halliday, F 2.K.Cummings, John Wiley & S 3.P.G.Hewitt: C 4.Ľ.Onderová, I	Recommended literature: 1. D.Halliday, R.Resnick, J.Walker: Fyzika, VUTIUM, Brno, 2000 2.K.Cummings, P.W.Law, E.F.Redish, P.J.Cooney: Understanding Physics, John Wiley & Sons, Inc., 2004 3.P.G.Hewitt: Conceptual Physics, tenth edition, Pearson, Addison Wesley, 2006 4.B. Onderevá, M.Kiraž, Z. Jašková, J. Dagra: Prelitikum čkolakách polyagov II. PE UDIŠ, 2004							
<b>Course languag</b> Slovak	ge:							
Notes:								
Course assessment Total number of assessed students: 42								
А	В	C	D	Е	FX			
90.48	2.38	4.76	2.38	0.0	0.0			
Provides: doc. 1	Provides: doc. RNDr. Marián Kireš, PhD.							
Date of last modification: 15.04.2022								
Approved: doc.	Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.							

University: P. J.	University: P. J. Šafárik University in Košice						
Faculty: Faculty	y of Science						
Course ID: ÚG POL2/21	GE/ Course name: Political geography						
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 EC	<b>IS credits:</b> 5		1				
Recommended	semester/trimes	ster of the cours	<b>e:</b> 6.				
Course level: 1.							
Prerequisities:							
<b>Conditions for</b>	course completi	on:					
Learning outco	mes:						
Brief outline of	the course:						
Recommended	literature:						
Course languag	ge:						
Notes:							
Course assessm Total number of	<b>Course assessment</b> Total number of assessed students: 3						
А	В	С	D	Е	FX		
0.0	0.0 66.67 33.33 0.0 0.0 0.0						
Provides: RNDr. Stela Csachová, PhD., doc. Mgr. Ladislav Novotný, PhD.							
Date of last mo	dification: 27.06	5.2022					
Approved: doc.	RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.			

University: P. J	University: P. J. Šafárik University in Košice					
Faculty: Facult	y of Science					
Course ID: ÚG POL1/18	E/ Course na	Course name: Political geography and geopolitics				
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 EC	<b>TS credits:</b> 5					
Recommended	semester/trimes	ster of the cours	<b>e:</b> 6.	_		
Course level: I.	, II.					
Prerequisities:						
<b>Conditions for</b>	course completi	ion:				
Learning outco	omes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	ge:					
Notes:						
Course assessm Total number of	<b>ent</b> f assessed studen	its: 341				
А	В	С	D	Е	FX	
43.4 31.96 15.54 6.74 2.05 0.29						
Provides: RNDr. Stela Csachová, PhD., Mgr. Štefan Gábor, doc. Mgr. Ladislav Novotný, PhD.						
Date of last mo	dification: 12.09	9.2020				
Approved: doc.	RNDr. Zuzana J	Ješková, PhD., pr	of. Mgr. Jaroslav	v Hofierka, PhD.		

University: P. J.	Šafárik Univers	ity in Košice					
Faculty: Faculty	of Science						
<b>Course ID:</b> ÚG GOBY/21	ÚGE/ <b>Course name:</b> Population Geography						
Course type, sc Course type: L Recommended Per week: 2 / 2 Course method	ope and the met Lecture / Practice I course-load (h 2 Per study period: d: present	thod: ours): od: 28 / 28					
Number of EC	I'S credits: 5						
Recommended	semester/trimes	ster of the cours	<b>e:</b> 2.				
Course level: 1.							
Prerequisities:							
Conditions for	course completi	on:					
Learning outco	mes:						
Brief outline of	the course:						
Recommended	literature:						
Course languag	ge:						
Notes:							
Course assessm Total number of	ent fassessed studen	ts: 77					
Α	В	С	D	Е	FX		
6.49	6.49 5.19 27.27 33.77 20.78 6.49						
Provides: doc. Mgr. Ladislav Novotný, PhD., RNDr. Janetta Nestorová-Dická, PhD.							
Date of last mo	dification: 27.06	5.2022					
Approved: doc.	RNDr. Zuzana J	Ješková, PhD., pr	of. Mgr. Jaroslav	v Hofierka, PhD.			

University: P. J. Šafá	rik University in Košice					
Faculty: Faculty of Science						
<b>Course ID:</b> ÚGE/ PVS/18	Course name: Population growth in Slovakia					
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 cr	edits: 5					
Recommended seme	ster/trimester of the course: 4.					
Course level: I.						
Prerequisities:						
The evaluation of stud control during the ten type of continuous of and successful soluti- conditions, i. e. comp in addition will not s (oral/written). If the s form. If a student door has to take both form	dent's performance is implemented through a combination of current, random m and the examination part within a particular period of the semester. This control includes at least 80% of students' active participation in teaching ons of given assignments. If a student does not follow and fullfil these two ulsory active learning part of the course, together with active participation and olve assigned tasks successfully cannot register, assign for the examination student receives more than 51% in the written form may proceed to the oral es not demonstrate particular knowledge during the oral examination student s of the examination once again.					
<b>Learning outcomes:</b> The Student shall acq	uires deeper knowledge of the population of Slovakia in terms of time and 3-D.					
Brief outline of the c Development of the migration, the total m internal migration; T Slovakia; The educat status of the population EU in terms of popul Seminars Workshops during the demonstrate the phene	ourse: population and its spatial differentiation, population Dynamics (natural, novement); Reproduction of the population; Migration for work, Foreign and 'he ageing of the population; The specificities of the Roma population in ional structure of the population; Economic, social, according to the marital on structure; Ethnic and religions structure of the population ; Slovakia in the ation processes; The demographic future of Slovakia. e semester are focused on filling the solution of tasks in order to practice or omena studied in the different regional units.					
Recommended litera	ture:					
Course language:						
Notes:						

Course assessn Total number o	nent f assessed studen	ts: 155				
A B C D E FX						
54.19	7.1	16.77	9.68	9.68	2.58	
Provides: RNDr. Janetta Nestorová-Dická, PhD.						
Date of last modification: 29.03.2020						
Approved: doc	Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.					

University: P. J. Šafź	arik University in Košice
<b>Faculty:</b> Faculty of S	Science
Course ID: KPPaPZ/PP/15	Course name: Positive Psychology
Course type, scope a Course type: Practi Recommended cou Per week: 2 Per stu Course method: pr	and the method: ce rse-load (hours): ady period: 28 esent
Number of ECTS cr	redits: 2
Recommended seme	ester/trimester of the course: 4., 6.
Course level: I.	
Prerequisities:	
<b>Conditions for cours</b> Assessment is based format. Up-to-date in on the electronic boa	se completion: on interim evaluation. The subject will be taught in both present and distance nformation concerning the subject for the given academic year can be found and of the subject in the Academic information system of the UPJŠ.
Students will acquire its main theory, cur rapidly developing fi thinking to the challe individual in contem topics of positive psy	e basic knowledge concerning the reasons for founding Positive psychology, rent research, as well as application of Positive psychology as a new and ield within psychology. Students will also gain experience in applying critical enges and issues that Positive psychology brings and raises in the context of the porary society. Emphasis is placed on the ability to critically evaluate current ychology.
<ul> <li>Brief outline of the of</li> <li>1. Different perspect</li> <li>2. Main theoretical a</li> <li>3. Positive emotions</li> <li>4. Meaningfulness</li> <li>5. Positive interperso</li> <li>6. Post-traumatic groups</li> <li>7. Hope and optimist</li> <li>8. Gratitude</li> <li>9. Spirituality as a personal structure of the str</li></ul>	ives on well-being nad happiness in psychology pproaches to positive psychology and positivity onal relations owth m ersonality dimension
Recommended liter Brewer, M. B, Hwes Deci, E., Ryan R. M. Křivohlavý, J.: Pozit Křivohlavý, J.: Psych Křivohlavý, J.: Psych	ature: tone, M: Emotion and Motivation, Blackwell, 2004 ., Handbook of Self – Determination Reasearch, Rochester, 2002 ivní psychologie. Praha, Portál, 2003 hologie vděčnosti a nevděčnosti. Praha, Grada, 2007 hologie moudrosti a dobrého života, Praha, Grada, 2012

Křivohlavý, J.: Psychologie pocitu štěstí, Grada, 2013 McAdams, D. P., The Person, New York, 2002 Seligman, M. E. P., & Csikszentmihalyi, M. (Eds.). (2000). Positive psychology [Special issue] American Psychologist, 55(1). Říčan, P.: Psychologie náboženství a spirituality, Praha, Portál, 2007 Slezáčková, A.:Pruvodce pozitivní psychologií, Praha, Grada, 2012

#### **Course language:**

Notes:

### **Course assessment**

Total number of assessed students: 408

А	В	С	D	Е	FX
98.28	1.23	0.25	0.0	0.25	0.0

Provides: Mgr. Jozef Benka, PhD.

Date of last modification: 24.06.2022

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J.	. Šafárik Univers	ity in Košice					
Faculty: Faculty	y of Science						
Course ID: KPPaPZ/Ps/15	urse ID: PaPZ/Ps/15Course name: Psychology						
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 EC	IS credits: 2		1 0 5				
Recommended	semester/trimes	ster of the cours	<b>e:</b> 1., 3., 5.				
Course level: I.	Course level: I.						
Prerequisities:							
Conditions for	course completi	ion:					
Learning outco	mes:						
Brief outline of	the course:						
Recommended	literature:						
Course languag	ge:						
Notes:							
Course assessment Total number of assessed students: 749							
А	В	С	D	Е	FX		
36.85	18.42	16.82	13.48	12.42	2.0		
Provides: PhDr. Anna Janovská, PhD., Mgr. Ondrej Kalina, PhD.							
Date of last mo	dification: 24.06	5.2022					
Approved: doc.	Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.						

Faculty: Faculty of Science         Course ID:         KPPaPZ/PKŽ/15         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.         Prerequisities:         Conditions for course completion:         The evaluation of the course and its subsequent completion will be based on clearly and objectively
Faculty of Science         Course ID:       Course name: Psychology of Everyday Life         KPPaPZ/PKŽ/15       Course name: Psychology of Everyday Life         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: 1.         Prerequisities:       Conditions for course completion:         The evaluation of the course and its subsequent completion will be based on clearly and objectively
Course ID: KPPaPZ/PKŽ/15       Course name: Psychology of Everyday Life         Course type, scope and the method: Course type: Practice       Course type: Practice         Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present       Course method: present         Number of ECTS credits: 2       Recommended semester/trimester of the course: 3.         Course level: I.       Prerequisities:         Conditions for course completion: The evaluation of the course and its subsequent completion will be based on clearly and objectively
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. Prerequisities: Conditions for course completion: The evaluation of the course and its subsequent completion will be based on clearly and objectively
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. Prerequisities: Conditions for course completion: The evaluation of the course and its subsequent completion will be based on clearly and objectively
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.         Prerequisities:         Conditions for course completion:         The evaluation of the course and its subsequent completion will be based on clearly and objectively
Recommended course-load (nours):         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.         Prerequisities:         Conditions for course completion:         The evaluation of the course and its subsequent completion will be based on clearly and objectively
Course method: present         Number of ECTS credits: 2         Recommended semester/trimester of the course: 3.         Course level: I.         Prerequisities:         Conditions for course completion:         The evaluation of the course and its subsequent completion will be based on clearly and objectively
Number of ECTS credits: 2         Recommended semester/trimester of the course: 3.         Course level: I.         Prerequisities:         Conditions for course completion:         The evaluation of the course and its subsequent completion will be based on clearly and objectively
Number of EC 1S credits: 2         Recommended semester/trimester of the course: 3.         Course level: I.         Prerequisities:         Conditions for course completion:         The evaluation of the course and its subsequent completion will be based on clearly and objectively
Recommended semester/trimester of the course: 3.         Course level: I.         Prerequisities:         Conditions for course completion:         The evaluation of the course and its subsequent completion will be based on clearly and objectively
Course level: I.  Prerequisities:  Conditions for course completion:  The evaluation of the course and its subsequent completion will be based on clearly and objectively
Prerequisities: Conditions for course completion: The evaluation of the course and its subsequent completion will be based on clearly and objectively
<b>Conditions for course completion:</b> The evaluation of the course and its subsequent completion will be based on clearly and objectively
<ul> <li>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.</li> <li>1. Active participation in seminars</li> <li>2. Elaboration and presentation of PPT presentation on the assigned topic. Maximum number of points 20; minimum number of points 11.</li> <li>3. Elaboration of an essay in the range of 4xA4 (standard pages). Maximum number of points 20; minimum number of points 11.</li> <li>The final evaluation (grade) is the sum of points for the presentation and the essay.</li> <li>A 40b - 37b</li> <li>B 36b - 33b</li> <li>C 32b - 29b</li> <li>D 28b - 25b</li> <li>E 24b - 21b</li> </ul>

The student is able to describe, explain and evaluate the psychological mechanisms that occur in everyday situations.

The student is able to apply basic psychological knowledge to himself (self-regulation) but also in interaction with others (cooperation).

The method of teaching the subject will be oriented to the student. Speakers will be interested in the needs, expectations and opinions of students 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:

How to understand human behavior (overview of basic approaches in psychology); Basic overview of cognitive processes; Learning processes and their use in practice; Social influences, prosocial and antisocial behavior; How human emotions and motivations work; Deciding - why and when we take risks; Childhood experiences and their relationship to adulthood; Abnormal behavior, mental disorders and therapeutic approaches

### **Recommended literature:**

### **Course language:**

Notes:

### **Course assessment**

Total number of assessed students: 208

А	В	С	D	Е	FX
42.79	21.15	28.85	5.29	1.44	0.48

Provides: Mgr. Ondrej Kalina, PhD.

Date of last modification: 24.06.2022

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J	. Šafárik Univers	ity in Košice				
Faculty: Facult	y of Science					
<b>Course ID:</b> ÚG KMG/17	E/ Course na	Course name: Quantitative Methods in Geography				
Course type, so Course type: 1 Recommende Per week: 1/2 Course metho	cope and the met Lecture / Practice d course-load (h 2 Per study peri d: present	thod: c ours): od: 14 / 28				
Number of EC	<b>1 S credits:</b> 3					
Recommended	semester/trimes	ster of the cours	<b>e:</b> 2.			
Course level: 1.						
Prerequisities:						
Conditions for	course completi	on:				
Learning outco	omes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	ge:					
Notes:						
Course assessn Total number o	nent f assessed studen	ts: 192				
А	В	С	D	Е	FX	
26.04	18.23	20.31	18.75	16.67	0.0	
<b>Provides:</b> RND Gurová	r. Janetta Nestoro	ová-Dická, PhD.,	prof. Mgr. Jaros	lav Hofierka, Phl	D., Mgr. Patrícia	
Date of last mo	dification: 29.03	3.2020				
Approved: doc	. RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.		

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚFV/ KVM/15	Course name: Quantum Mechanics I.
Course type, scope a Course type: Lectur Recommended cou Per week: 3 / 2 Per Course method: pro	and the method: re / Practice rse-load (hours): study period: 42 / 28 esent
Number of ECTS cr	redits: 5
Recommended seme	ester/trimester of the course: 5.
Course level: I.	
Prerequisities:	
Conditions for course To successfully come	se completion: se completion: uplete the course, the student must demonstrate sufficient understanding of

the basics terms, concepts and applications of quantum physics. Knowledge of basic concepts is required from quantum physics at the level of their mathematical definition as well as their physical content and concrete applications. During the semester, the student must continuously master the content of the curriculum in order to gain the acquired knowledge, which he should actively and creatively use in solving specific tasks during exercises and complete continuous written tests taken into account in the overall evaluation of the subject. The condition for obtaining credits is passing 2 continuous written tests in exercises and an oral exam, which consists of one computational task and theoretical questions. The credit evaluation of the course takes into account the following student workload: direct teaching (2 credits), self-study (1 credit), individual consultations (1 credit) and assessment (1 credit). 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%), F (0-49%).

### Learning outcomes:

After completing lectures and exercises, the student will have sufficient physical skills,

knowledge and mathematical apparatus enabling independent solution of a wide range of traditional scientific problems in quantum physics. At the same time, he will gain an overview of the applications of quantum physics in various areas of physics such as nuclear physics, condensed matter physics, statistical physics, etc.

#### Brief outline of the course:

1. Subject of study, experimental and theoretical foundations of quantum mechanics (QM).

2. Wave formulation of QM. Postulate about wave function, superposition principle and postulate about operators.

3. Eigenvalues and eigenfunctions of operators. Measurement of quantities and reduction of wave function.

4. Time-independent and time-dependent Schrödinger equation. Ehrenfest equations and integrals of motion. A continuity equation.

5. Matrix formulation of QM, Dirac symbolism, calculation of mean values and density matrix.

6. Current immeasurability of physical quantities, Heisenberg uncertainty relations.

7. Solution of the Schrödinger equation for a particle in an infinitely deep potential well and a particle in the final potential well. Bound and scattering states.

8. Passage of a particle through a potential barrier: tunneling and barrier reflection.

9. Solution of Schrödinger equation for linear harmonic oscillator.

10. Particle motion in the central potential field, angular part of the Schrödinger equation.

11. Particle motion in the central potential field, radial part of the Schrödinger equation. Hydrogen atom.

12. Electron spin, Pauli matrix. Principle of indistinguishability of identical particles, fermions and bosons. Pauli's exclusion principle.

### **Recommended literature:**

1. Ľ. Tóth, M. Tóthová, Kvantová a štatistická fyzika I, Rektorát Univerzity P. J. Šafárika, 1982. (in Slovak language)

2. Ľ. Skála, Úvod do kvantovej mechaniky, Academia, Praha, 2005. (in Czech language)

3. J. Pišút, L. Gomolčák, Úvod do kvantovej mechaniky, Bratislava 1983. (in Slovak language)

4. W. Greiner, Quantum Mechanics, 4th edition, Springer, Berlin, 2000.

5. A. C. Philips, Introduction to Quantum Mechanics, Wiley, Weinheim, 2003.

6. D. J. Griffiths, Introduction to Quantum Mechanics, Prentice Hall, New Jersey, 1995.

7. G. Auletta, M. Fortunato, G. Parisi, Quantum Mechanics, Cambridge University Press, Cambridge, 2009.

**Course language:** 

EN - english

Notes:

### Course assessment

Total number of assessed students: 40

А	В	С	D	Е	FX
22.5	20.0	25.0	15.0	7.5	10.0

Provides: doc. RNDr. Jozef Strečka, PhD.

Date of last modification: 19.09.2021

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

University: P. J.	Šafárik Univers	sity in Košice					
Faculty: Faculty	y of Science						
<b>Course ID:</b> ÚG RGE2/21	E/ <b>Course n</b> a	E/ Course name: Regional Geography of Europe					
Course type, sc Course type: I Recommended Per week: 3 / 1 Course metho	ope and the me Lecture / Practice I course-load (h Per study peri d: present	thod: e ours): od: 42 / 14					
Number of ECT	<b>FS credits:</b> 5						
Recommended	semester/trimes	ster of the cours	<b>e:</b> 6.	_			
Course level: I.							
Prerequisities:							
Conditions for	course completi	ion:					
Learning outco	mes:						
Brief outline of	the course:						
Recommended	literature:						
Course languag	ge:						
Notes:							
Course assessm Total number of	ent f assessed studen	its: 3					
А	В	С	D	Е	FX		
0.0	0.0	33.33	66.67	0.0	0.0		
<b>Provides:</b> RND PhD.	r. Stela Csachova	á, PhD., RNDr. A	lena Gessert, Ph	D., doc. Mgr. La	dislav Novotný,		
Date of last mo	dification: 27.06	5.2022					
Approved: doc.	RNDr. Zuzana .	Ješková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.			

University: P. J.	. Šafárik Univers	ity in Košice				
Faculty: Faculty	y of Science					
Course ID: KP OLŠ/15	Course name: School Administration and Legislation					
Course type, sc Course type: I Recommended Per week: 2 Pe Course metho	ope and the met Practice d course-load (h er study period: d: present	thod: ours): 28				
Number of EC	<b>TS credits:</b> 2					
Recommended	semester/trimes	ster of the cours	<b>e:</b> 3., 5.			
Course level: I.						
Prerequisities:						
Conditions for	course completi	on:				
Learning outco	omes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	ge:					
Notes:						
Course assessm Total number of	ent f assessed studen	its: 285				
А	В	С	D	Е	FX	
45.61	29.82	14.39	6.32	3.16	0.7	
Provides: Paedl	Dr. Michal Novo	cký, PhD.				
Date of last mo	dification: 20.06	5.2022				
Approved: doc.	. RNDr. Zuzana J	Ješková, PhD., pr	of. Mgr. Jaroslav	v Hofierka, PhD.		

University: P. J. Šafárik University in Košice
Faculty: Faculty of Science
Course ID: ÚTVŠ/ Course name: Seaside Aerobic Exercise ÚTVŠ/CM/13
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:
Course level: I., II.
Prerequisities:
Conditions for course completion: Completion: passed Condition for successful course completion: - active participation in line with the study rule of procedure and course guidelines - effective performance of all tasks- aerobics, water exercise, yoga, Pilates and others
Learning outcomes: Content standard: The student demonstrates relevant knowledge and skills in the field, which content is defined in the course syllabus and recommended literature. Performance standard: Upon completion of the course students are able to meet the performance standard and: - perform basic aerobics steps and basics of health exercises, - conduct verbal and non-verbal communication with clients during exercise, - organise and manage the process of physical recreation in leisure time
Brief outline of the course:         Brief outline of the course:         1. Basic aerobics – low impact aerobics, high impact aerobics, basic steps and cuing         2. Basics of aqua fitness         3. Basics of Pilates         4. Health exercises         5. Bodyweight exercises         6. Swimming         7. Relaxing yoga exercises         8. Power yoga         9. Yoga relaxation         10. Final assessment         Students can engage in different sport activities offered by the sea resort – swimming, rafting, volleyball, football, table tennis, tennis and other water sports in particular.
Recommended literature: 1. BUZKOVÁ, K. 2006. Fitness jóga. Praha: Grada. 167 s.

<ol> <li>ŽECHOVSKÁ, I., MILEROVÁ, H., NOVOTNÁ, V. Aqua-fitness. Praha: Grada. 136 s.</li> <li>EVANS, M., HUDSON, J., TUCKER, P. 2001. Umění harmonie: meditace, jóga, tai-či, strečink. 192 s.</li> <li>JARKOVSKÁ, H., JARKOVSKÁ, M. 2005. Posilováni s vlastním tělem 417 krát jinak. Praha: Grada. 209 s.</li> <li>KOVAŘÍKOVÁ, K. 2017. Aerobik a fitness. Karolium, 130 s.</li> </ol>		
Course language: Slovak language		
Notes:		
Course assessment Total number of assessed students: 54		
abs	n	
11.11 88.89		
Provides: Mgr. Agata Dorota Horbacz, PhD.		
Date of last modification: 29.03.2022		
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.		

University: P. J	. Šafárik Univers	ity in Košice			
Faculty: Facult	y of Science				
Course ID: KF/ VKFV/07	/ <b>Course name:</b> Selected Topics in Philosophy of Education (General Introduction)				
Course type, sc Course type: I Recommended Per week: 2 P Course metho	cope and the met Practice d course-load (h er study period: d: present	thod: ours): 28			
Number of EC	IS credits: 2				
Recommended	semester/trimes	ster of the cours	e: 3., 5.		
<b>Course level:</b> I.					
Prerequisities:					
Conditions for	course completi	on:			
Learning outco	Learning outcomes:				
Brief outline of	the course:				
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 16					
А	В	С	D	Е	FX
37.5	37.5 37.5 18.75 6.25 0.0 0.0				0.0
Provides: PhDr. Dušan Hruška, PhD.					
Date of last modification: 13.04.2022					
Approved: doc.	. RNDr. Zuzana J	Ješková, PhD., pr	of. Mgr. Jaroslav	v Hofierka, PhD.	

University: P. J. Šafárik Unive	rsity in Košice
<b>Faculty:</b> Faculty of Science	
Course ID: ÚGE/ SBP1/13	name: Seminar for Bachelor Thesis I.
Course type, scope and the m Course type: Practice Recommended course-load ( Per week: 2 Per study period Course method: present	ethod: hours): l: 28
Number of ECTS credits: 2	
Recommended semester/trim	ester of the course: 5.
Course level: I.	
Prerequisities:	
<b>Conditions for course comple</b> Verification of acquired basic presentation (70% of rating) ar of the both parts of examination for D 60% and for E 50%. Creating any of both parts of examination	<b>tion:</b> methodologic and formal procedures of the final thesis creation by ad written examination (30%). To obtain A grade, weighted average on must reach at least 90%, To obtain B it is 80%, for C it is 70%, dits shall not be granted to a student who obtain less than 50% from on.
<b>Learning outcomes:</b> Mastering basic theoretical, m creation.	ethodological and formal scientific procedures of bachelor thesis
Brief outline of the course: The content and form of select Ethics and culture of writing of electronic, etc.). Formal aspects grammar, typography). Rules of of diploma thesis.	ted parts of thesis writing (abstract, introduction, conclusion, etc.) diploma thesis, citations and references, types of sources (printed, s of the thesis. Linguistic adjustment (terminology, stylistics, syntax, of presentation of the thesis. Presentation of current results and state
Recommended literature: ÚTVAR REKTORA UPJŠ 201 UPJŠ v Košiciach. Dostupné n zaverecne-prace/>. ÚSTAV GEOGRAFIE PF UPJ Prírodovedeckej fakulty UPJŠ images/studium/Pokyny_ZP_U HOVORKA, D., KOMÁREK, (Vydavateľstvo Osveta). KATUŠČÁK, D. 2008: Ako pí	9: Základné usmernenia a dokumenty k záverečným prácam na a: <https: <br="" pracoviska="" univerzitna-kniznica="" www.upjs.sk="">Š 2019: Pokyny na tvorbu záverečných prác na Ústave gego-rafie v Košiciach. Dostupné na: <https: <br="" geografia.science.upjs.sk="">JGE_2019.pdf&gt;. K., CHRAPAN, J. 2011: Ako písať a komunikovať. Martin sať záverečné a kvalifikačné práce. Nitra (Enigma).</https:></https:>
Course language: Slovak	
Notes:	

Course assessm Total number o	nent f assessed studen	ts: 448			
А	В	С	D	Е	FX
91.96	6.7	0.67	0.0	0.67	0.0
Provides: prof. Mgr. Jaroslav Hofierka, PhD., doc. Mgr. Ladislav Novotný, PhD.					
Date of last modification: 22.09.2020					
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.					

University: P. J	. Šafárik Univers	ity in Košice			
Faculty: Faculty of Science					
Course ID: ÚG SBP2/13	ÚGE/ <b>Course name:</b> Seminar for Bachelor Thesis II.				
Course type, sc Course type: I Recommended Per week: 2 P Course metho	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 EC	<b>FS credits:</b> 2				
Recommended	semester/trimes	ster of the cours	<b>e:</b> 6.		
Course level: I.					
Prerequisities:					
<b>Conditions for course completion:</b> Verification of acquired methodological and formal procedures of the creation of bachelor thesis by the presentation of current thesis creation by presentation of own bachelor thesis (100% of rating). To obtain A grade, the rating os student's presentation must reach at least 90%, To obtain B it is 80%, for C it is 70%, for D 60% and for E 50%. Credits shall not be granted to a student who obtain rating less than 50%.					
Learning outco Acquired skills thesis creation.	<b>Learning outcomes:</b> Acquired skills to apply theoretical, methodological and formal scientific procedures of diploma thesis creation.				
<b>Brief outline of the course:</b> The seminary is focused to the topics of individual bachelor thesis. Students present current state of their thesis, its content and its particular parts. Each bachelor thesis is discussed at scientific level.					
Recommended literature: HOVORKA, D., KOMÁREK, K., CHRAPAN, J. 2011: Ako písať a komunikovať. Martin (Vydavateľstvo Osveta), 247 s. KATUŠČÁK, D. 2008: Ako písať záverečné a kvalifikačné práce. Nitra (Enigma), 162 s. ÚTVAR REKTORA UPJŠ (2011): Smernica č. 1/2011, Dostupné na internete: <http: 2438="" media="" public="" smernica-1-2011.pdf="" www.upjs.sk="">, 25 s.</http:>					
Course language: Slovak					
Notes:					
Course assessm Total number of	ent f assessed studen	its: 391			
А	В	С	D	Е	FX
69.57	21.48	7.67	0.51	0.26	0.51
Provides: Mgr.	Katarína Onačill	ová, PhD., prof.	Mgr. Jaroslav Ho	ofierka, PhD.	
Date of last mo	dification: 03.05	5.2015			

Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.

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University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of Science			
<b>Course ID:</b> ÚGE/ SHG/21	ourse ID: ÚGE/ HG/21Course name: Seminar of human geography		
Course type, scope a Course type: Practic Recommended course Per week: 2 Per stu Course method: pre	nd the method: ce rse-load (hours): dy period: 28 esent		
Number of ECTS cr	edits: 3		
Recommended seme	ster/trimester of the cours	e: 6.	
Course level: I.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:	Learning outcomes:		
Brief outline of the course:			
Recommended literature:			
Course language:			
Notes:			
Course assessment Total number of asses	ssed students: 0		
	abs	n	
	0.0	0.0	
Provides: Mgr. Marián Kulla, PhD., RNDr. Stela Csachová, PhD., RNDr. Janetta Nestorová- Dická, PhD., doc. Mgr. Ladislav Novotný, PhD.			
Date of last modification: 27.06.2022			
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.			

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of Science			
<b>Course ID:</b> ÚGE/ SFG/21	Ourse ID: ÚGE/       Course name: Seminar of physical geography         FG/21       FG/21		
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: ce rse-load (hours): dy period: 28 esent		
Number of ECTS cr	edits: 3		
Recommended seme	ster/trimester of the cours	e: 6.	
Course level: I.			
Prerequisities:	Prerequisities:		
Conditions for cours	e completion:		
Learning outcomes:	Learning outcomes:		
Brief outline of the course:			
Recommended litera	Recommended literature:		
Course language:			
Notes:			
<b>Course assessment</b> Total number of asses	ssed students: 0		
	abs	n	
	0.0	0.0	
<b>Provides:</b> RNDr. Duš PhD.	an Barabas, CSc., doc. Ing.	Katarína Bónová, PhD., RNDr. Alena Gessert,	
Date of last modification: 27.06.2022			
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.			

University: P. J. Šafa	árik University in Košice
Faculty: Faculty of S	Science
Course ID: KPO/ SPKVV/15	Course name: Social and Political Context of Education
Course type, scope a Course type: Lectu Recommended cou Per week: 2 Per stu Course method: pr	and the method: re irse-load (hours): ady period: 28 esent
Number of ECTS c	redits: 2
Recommended sem	ester/trimester of the course: 4., 6.
Course level: I.	
Prerequisities:	
Conditions for cour Evaluation of the de A 100,00% - 91,0 B 90,99% - 81,00 C 80,99% - 71,00 D 70,99% - 61,00 E 60,99% - 51,00 FX 50,99% and le	se completion: veloped assignment. 0% % % % %
Learning outcomes	
The aim and purpose	e of teaching the subject is to impart knowledge and promote reflection on the

The aim and purpose of teaching the subject is to impart knowledge and promote reflection on the issues of education and training in the context of social and political change.

Development of knowledge: the student will be able to know the current theoretical background related to the process of education and training in a modern democratic society.

The student will be able to navigate the social and political space - politically, legally, socially and culturally. He/she will be able to look for alternatives and solutions to dysfunctions, while at the same time exploiting opportunities and ways to implement them.

### Brief outline of the course:

The status, role and functions of education in human life and society. The political, social and economic objectives of education. Education, learning and social change in the context of globalisation. Macrosocial determinants of education. Current roles of education and training in modern performance and democratic society.

#### **Recommended literature:**

Domestic and foreign journal literature

Kudláčová, B.(2007) Človek a výchova v dejinách európskeho myslenia. Trnava: PdF TU Zeus Leonardo (2010) Handbook of Cultural Politics and Education. Rotterdam, The Netherlands.

#### Course language:

Slovak

Notes:

Course assessment					
Total number o	i assessed studen	ts: 15/			
Α	В	С	D	E	FX
60.51	21.02	11.46	4.46	1.27	1.27
Provides: Mgr. Ján Ruman, PhD.					
Date of last modification: 13.04.2022					
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.					

University: P. J. Safárik University in Košice	<b>University:</b>	P. J.	Šafárik	University in Košic	e
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Faculty: Faculty of Science

Course ID: KGER/	Course name: Specialised German Language - Natural Sciences 1
OJPV1/07	

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: 4.

Course level: I.

Prerequisities:

#### **Conditions for course completion:**

Active participation in class and completed homework assignments. Students are allowed to miss 2 classes at the most (2x90 min.). 1 control tests during the semester and written assignments. Final grade will be calculated as follows: A 93-100 %, B 86-92%, C 79-85%, D 72-78%, E 65-71%, FX 64 % and less.

#### Learning outcomes:

The development of students' language skills - reading, writing, listening, speaking, improvement of their linguistic competence - students acquire knowledge of selected phonological, lexical and syntactic aspects, development of pragmatic competence - students can effectively use the language for a given purpose, with focus on Academic English and English for specific/professional purposes - Natural Science , level B1.

#### **Brief outline of the course:**

#### **Recommended literature:**

Duden Basiswissen Schule. Abitur: Enthält die Bände Mathematik, Physik, Chemie, Biologie, Geographie, Geschichte. (2007). ISBN: 978-3411002511.

Zettl, E. et al.: Aus moderner Technik und Naturwissenschaft. Ismaning: Hueber, 2003.

Reiss, K.: Basiswissen Zahlentheorie: Eine Einführung in Zahlen und Zahlbereiche (Mathematik für das Lehramt), Springer, 2007. ISBN: 978-3540453772.

Meyer, L., Schmidt, G.- D.: Basiswissen Ausbildung: Physik. Bildungsverlag EINS, 2008. ISBN: 978-3427799337.

Duden. Schülerduden Biologie: Das Fachlexikon von A-Z. Bibliographisches Institut Berlin, 2009. ISBN: 978-3411054275.

Mortimer, Ch. E., Müller, U., Beck, J.: Chemie: Das Basiswissen der Chemie. Stuttgart: Thieme, 2014. ISBN: 978-313484311

Deutsch perfekt, GEO, MaxPlanck Forschung a iné printové a elektronické médiá

Course	language:
German	L

Notes:
Course assessment					
Total number o	f assessed studen	ts: 147			
А	В	С	D	Е	FX
24.49	23.13	23.81	20.41	7.48	0.68
Provides: Mgr.	Blanka Jenčíkov	á		<u> </u>	
Date of last modification: 09.02.2023					
Approved: doc. RNDr. Zuzana Ješková, PhD., prof. Mgr. Jaroslav Hofierka, PhD.					

University: P. J. Šafá	rik University in Košice					
Faculty: Faculty of S	Faculty: Faculty of Science					
Course ID: ÚTVŠ/ TVa/11	Course name: Sports Activities I.					
Course type, scope a Course type: Practi- Recommended cou Per week: 2 Per stu Course method: pre	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 cr	edits: 2					
Recommended semester/trimester of the course: 1.						
Course level: I., I.II.,	Course level: I., I.II., II.					
Prerequisities:	Prerequisities:					

## **Conditions for course completion:**

Min. 80% of active participation in classes.

#### Learning outcomes:

Sports activities in all their forms prepare university students for their professional and personal life. They have a great impact on physical fitness and performance. Specialization in sports activities enables students to strengthen their relationship towards the selected sport in which they also improve.

## Brief outline of the course:

Brief outline of the course:

Within the optional subject, the Institute of Physical Education and Sports of Pavol Jozef Šafárik University provides for students the following sports activities: aerobics, aikido, basketball, badminton, body form, bouldering, floorball, yoga, power yoga, pilates, swimming, body-building, indoor football, S-M systems, step aerobics, table tennis, tennis, volleyball and chess.

In the first two semesters of the first level of education students will master basic characteristics and particularities of individual sports, motor skills, game activities, they will improve level of their physical condition, coordination abilities, physical performance, and motor performance fitness. Last but not least, the important role of sports activities is to eliminate swimming illiteracy and by means of a special program of medical physical education to influence and mitigate unfitness. In addition to these sports, the Institute offers for those who are interested winter and summer physical education trainings with an attractive program and organises various competitions, either at the premises of the faculty or University or competitions with national or international participation.

#### **Recommended literature:**

BENCE, M. et al. 2005. Plávanie. Banská Bystrica: FHV UMB. 198s. ISBN 80-8083-140-8. [online] Dostupné na: https://www.ff.umb.sk/app/cmsFile.php?disposition=a&ID=571 BUZKOVÁ, K. 2006. Fitness jóga, harmonické cvičení těla I duše. Praha: Grada. ISBN 8024715252.

JARKOVSKÁ, H, JARKOVSKÁ, M. 2005. Posilování s vlastním tělem 417 krát jinak. Praha: Grada. ISBN 9788024757308.

KAČÁNI, L. 2002. Futbal:Tréning hrou. Bratislava: Peter Mačura – PEEM. 278s. ISBN 8089197027.

# KRESTA, J. 2009. Futsal.Praha: Grada Publishing, a.s. 112s. ISBN 9788024725345. LAWRENCE, G. 2019. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902. SNER, Wolfgang. 2004. Posilování ve fitness. České Budějovice: Kopp. ISBN 8072322141. STACKEOVÁ, D. 2014. Fitness programy z pohledu kinantropologie. Praha: Galén. ISBN 9788074921155.

VOMÁČKO, S. BOŠTÍKOVÁ, S. 2003. Lezení na umělých stěnách. Praha: Grada. 129s. ISBN 8024721743.

## Course language:

Slovak language

#### Notes:

## **Course assessment**

Total number of assessed students: 14548

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
86.46	0.07	0.0	0.0	0.0	0.05	8.41	5.02

**Provides:** Mgr. Agata Dorota Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., MPH, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Marcel Čurgali, Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD., Mgr. Richard Melichar, Mgr. Petra Tomková, PhD., MUDr. Peter Dombrovský

**Date of last modification:** 29.03.2022

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of Science					
<b>Course ID:</b> ÚTVŠ/ TVb/11	Course name: Sports Activities 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 cr	edits: 2				
Recommended seme	ster/trimester of the course: 2.				
Course level: I., I.II.,	II.				
Prerequisities:					
<b>Conditions for cours</b> active participation in	e completion: n classes - min. 80%.				
Learning outcomes: Sports activities in all They have a great im enables students to s improve.	their forms prepare university students for their professional and personal life. pact on physical fitness and performance. Specialization in sports activities strengthen their relationship towards the selected sport in which they also				
Improve. <b>Brief outline of the course:</b> Within the optional subject, the Institute of Physical Education and Sports of Pavol Jozef Šafárik University provides for students the following sports activities: aerobics, aikido, basketball, badminton, body form, bouldering, floorball, yoga, power yoga, pilates, swimming, body-building, indoor football, S-M systems, step aerobics, table tennis, tennis, volleyball and chess. In the first two semesters of the first level of education students will master basic characteristics and particularities of individual sports, motor skills, game activities, they will improve level of their physical condition, coordination abilities, physical performance, and motor performance fitness. Last but not least, the important role of sports activities is to eliminate swimming illiteracy and by means of a special program of medical physical education to influence and mitigate unfitness. In addition to these sports, the Institute offers for those who are interested winter and summer physical education trainings with an attractive program and organises various competitions, either at the premises of the faculty or University or competitions with national or international participation.					
Recommended litera BENCE, M. et al. 20 [online] Dostupné na BUZKOVÁ, K. 2006 8024715252.	i <b>ture:</b> 05. Plávanie. Banská Bystrica: FHV UMB. 198s. ISBN 80-8083-140-8. : https://www.ff.umb.sk/app/cmsFile.php?disposition=a&ID=571 5. Fitness jóga, harmonické cvičení těla I duše. Praha: Grada. ISBN				

JARKOVSKÁ, H, JARKOVSKÁ, M. 2005. Posilování s vlastním tělem 417 krát jinak. Praha: Grada. ISBN 9788024757308.

KAČÁNI, L. 2002. Futbal:Tréning hrou. Bratislava: Peter Mačura – PEEM. 278s. ISBN 8089197027.

KRESTA, J. 2009. Futsal.Praha: Grada Publishing, a.s. 112s. ISBN 9788024725345.

LAWRENCE, G. 2019. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902. SNER, Wolfgang. 2004. Posilování ve fitness. České Budějovice: Kopp. ISBN 8072322141. STACKEOVÁ, D. 2014. Fitness programy z pohledu kinantropologie. Praha: Galén. ISBN 9788074921155.

VOMÁČKO, S. BOŠTÍKOVÁ, S. 2003. Lezení na umělých stěnách. Praha: Grada. 129s. ISBN 8024721743.

#### **Course language:**

Slovak language

#### Notes:

#### Course assessment

Total number of assessed students: 13211

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
84.35	0.51	0.02	0.0	0.0	0.05	10.78	4.29

**Provides:** Mgr. Agata Dorota Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., MPH, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Marcel Čurgali, Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD., Mgr. Richard Melichar, Mgr. Petra Tomková, PhD., MUDr. Peter Dombrovský

**Date of last modification:** 29.03.2022

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
<b>Course ID:</b> ÚTVŠ/ TVc/11	Course name: Sports Activities III.
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: ce rse-load (hours): dy period: 28 esent
Number of ECTS cr	edits: 2
Recommended seme	ster/trimester of the course: 3.
Course level: I., I.II.,	П.
Prerequisities:	
Conditions for cours min. 80% of active particular Learning outcomes:	e completion: articipation in classes
Sports activities in all They have a great im enables students to s improve.	their forms prepare university students for their professional and personal life spact on physical fitness and performance. Specialization in sports activities strengthen their relationship towards the selected sport in which they also
Brief outline of the c Within the optional s University provides badminton, body form indoor football, S-M In the first two seme and particularities of physical condition, c Last but not least, the means of a special pr In addition to these physical education tra the premises of the fac	ourse: ubject, the Institute of Physical Education and Sports of Pavol Jozef Šafárik for students the following sports activities: aerobics, aikido, basketball, n, bouldering, floorball, yoga, power yoga, pilates, swimming, body-building, systems, step aerobics, table tennis, tennis, volleyball and chess. sters of the first level of education students will master basic characteristics individual sports, motor skills, game activities, they will improve level of their oordination abilities, physical performance, and motor performance fitness important role of sports activities is to eliminate swimming illiteracy and by ogram of medical physical education to influence and mitigate unfitness. sports, the Institute offers for those who are interested winter and summer ainings with an attractive program and organises various competitions, either a culty or University or competitions with national or international participation
<b>Recommended litera</b> BENCE, M. et al. 200 [online] Dostupné na	i <b>ture:</b> 05. Plávanie. Banská Bystrica: FHV UMB. 198s. ISBN 80-8083-140-8. : https://www.ff.umb.sk/app/cmsFile.php?disposition=a&ID=571

BUZKOVÁ, K. 2006. Fitness jóga, harmonické cvičení těla I duše. Praha: Grada. ISBN 8024715252.

JARKOVSKÁ, H, JARKOVSKÁ, M. 2005. Posilování s vlastním tělem 417 krát jinak. Praha: Grada. ISBN 9788024757308.

KAČÁNI, L. 2002. Futbal:Tréning hrou. Bratislava: Peter Mačura – PEEM. 278s. ISBN 8089197027.

KRESTA, J. 2009. Futsal.Praha: Grada Publishing, a.s. 112s. ISBN 9788024725345.

LAWRENCE, G. 2019. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902. SNER, Wolfgang. 2004. Posilování ve fitness. České Budějovice: Kopp. ISBN 8072322141. STACKEOVÁ, D. 2014. Fitness programy z pohledu kinantropologie. Praha: Galén. ISBN 9788074921155.

VOMÁČKO, S. BOŠTÍKOVÁ, S. 2003. Lezení na umělých stěnách. Praha: Grada. 129s. ISBN 8024721743.

#### **Course language:**

Slovak language

#### Notes:

## Course assessment

Total number of assessed students: 8879

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
88.62	0.07	0.01	0.0	0.0	0.02	4.25	7.03

**Provides:** Mgr. Marcel Čurgali, Mgr. Agata Dorota Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., MPH, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD., Mgr. Richard Melichar, Mgr. Petra Tomková, PhD., MUDr. Peter Dombrovský

**Date of last modification:** 29.03.2022

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
<b>Course ID:</b> ÚTVŠ/ TVd/11	Course name: Sports Activities IV.
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: ce rse-load (hours): dy period: 28 esent
Number of ECTS cr	edits: 2
Recommended seme	ster/trimester of the course: 4.
Course level: I., I.II.,	II.
Prerequisities:	
<b>Conditions for cours</b> min. 80% of active pa	e completion: articipation in classes
Learning outcomes: Sports activities in all They have a great im enables students to s improve.	their forms prepare university students for their professional and personal life. spact on physical fitness and performance. Specialization in sports activities strengthen their relationship towards the selected sport in which they also
<b>Brief outline of the c</b> Within the optional s University provides badminton, body form indoor football, S-M In the first two seme and particularities of i physical condition, c Last but not least, the means of a special pr In addition to these physical education tra the premises of the fac	ourse: ubject, the Institute of Physical Education and Sports of Pavol Jozef Šafárik for students the following sports activities: aerobics, aikido, basketball, n, bouldering, floorball, yoga, power yoga, pilates, swimming, body-building, systems, step aerobics, table tennis, tennis, volleyball and chess. sters of the first level of education students will master basic characteristics individual sports, motor skills, game activities, they will improve level of their oordination abilities, physical performance, and motor performance fitness. important role of sports activities is to eliminate swimming illiteracy and by ogram of medical physical education to influence and mitigate unfitness. sports, the Institute offers for those who are interested winter and summer attractive program and organises various competitions, either attractule or University or competitions with national or international participation.
BENCE, M. et al. 200	1010-1010-1010-1010-1010-1010-1010-101

[online] Dostupné na: https://www.ff.umb.sk/app/cmsFile.php?disposition=a&ID=571 BUZKOVÁ, K. 2006. Fitness jóga, harmonické cvičení těla I duše. Praha: Grada. ISBN 8024715252.

JARKOVSKÁ, H, JARKOVSKÁ, M. 2005. Posilování s vlastním tělem 417 krát jinak. Praha: Grada. ISBN 9788024757308.

KAČÁNI, L. 2002. Futbal:Tréning hrou. Bratislava: Peter Mačura – PEEM. 278s. ISBN 8089197027.

KRESTA, J. 2009. Futsal.Praha: Grada Publishing, a.s. 112s. ISBN 9788024725345.

LAWRENCE, G. 2019. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902. SNER, Wolfgang. 2004. Posilování ve fitness. České Budějovice: Kopp. ISBN 8072322141. STACKEOVÁ, D. 2014. Fitness programy z pohledu kinantropologie. Praha: Galén. ISBN 9788074921155.

VOMÁČKO, S. BOŠTÍKOVÁ, S. 2003. Lezení na umělých stěnách. Praha: Grada. 129s. ISBN 8024721743.

#### **Course language:**

Slovak language

#### Notes:

## Course assessment

Total number of assessed students: 5628

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
82.66	0.28	0.04	0.0	0.0	0.0	8.05	8.97

**Provides:** Mgr. Marcel Čurgali, Mgr. Agata Dorota Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., MPH, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD., Mgr. Richard Melichar, Mgr. Petra Tomková, PhD., MUDr. Peter Dombrovský

**Date of last modification:** 29.03.2022

University: P. J	. Šafárik Univers	sity in Košice			
Faculty: Facult	y of Science				
Course ID: ÚG STMG/21	E/ Course na	ame: Statistical N	Aethods in Geog	raphy	
Course type, sc Course type: 1 Recommended Per week: 1 / 2 Course metho	ope and the met Lecture / Practice d course-load (h 2 Per study perio d: present	thod: c ours): od: 14 / 28			
Number of EC	TS credits: 3				
Recommended	semester/trimes	ster of the cours	e: 2.		
Course level: I.					
Prerequisities:					
Conditions for	course completi	on:			
Learning outco	omes:				
Brief outline of	the course:				
Recommended	literature:				
Course languag	ge:				
Notes:					
<b>Course assessm</b> Total number of	nent f assessed studen	its: 76			
А	В	С	D	Е	FX
34.21	22.37	13.16	14.47	15.79	0.0
Provides: prof. Mgr. Jaroslav Hofierka, PhD., RNDr. Janetta Nestorová-Dická, PhD.					
Date of last mo	dification: 12.02	2.2023			
Approved: doc.	. RNDr. Zuzana J	Ješková, PhD., pr	of. Mgr. Jaroslav	v Hofierka, PhD.	

University: P. J.	Šafárik Univers	ity in Košice			
Faculty: Faculty	Faculty: Faculty of Science				
Course ID: ÚFV STA1N/15	// Course na	me: Statistical P	hysics		
Course type, sco Course type: L Recommended Per week: 2 / 2 Course method	ope and the met ecture / Practice course-load (h Per study perio l: present	thod: ; ours): od: 28 / 28			
Number of ECT	S credits: 4				
Recommended	semester/trimes	ster of the course	e: 6.		
<b>Course level:</b> I.					
Prerequisities: 1	ÚFV/KVM/08 o	r ÚFV/KVM/15			
Conditions for a	course completi	on:			
Learning outco	mes:				
Brief outline of	the course:				
Recommended	literature:				
<b>Course languag</b> Slovak, English	e:				
Notes:					
Course assessm Total number of	ent assessed studen	ts: 37			
A	В	С	D	Е	FX
37.84	29.73	16.22	8.11	8.11	0.0
Provides: prof. 1	RNDr. Michal Ja	sčur, CSc., Mgr.	Pavol Gajdoš, P	hD.	
Date of last mod	lification: 02.04	1.2020			
Approved: doc.	RNDr. Zuzana J	ešková, PhD., pr	of. Mgr. Jaroslav	v Hofierka, PhD.	

University: P. J. Šaf	University: P. J. Šafárik University in Košice					
Faculty: Faculty of	Faculty: Faculty of Science					
Course ID: ÚFV/ SVL1/03	Course name: Structure and Properties of Solids					
Course type, scope Course type: Lectu Recommended cou Per week: 3 Per st Course method: pr	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 c	Number of ECTS credits: 5					
Recommended semester/trimester of the course: 5.						
Course level: I.						

Prerequisities:

## **Conditions for course completion:**

For successful completing of the subject student after taking exam shows adequate knowledge from area of structure and properties of solids, After completing the subject student is able to continue with the lectures from the specialized courses like Magnetism, Low Temperature Physics, Structural analysis, Supercondutors etc. Credits evaluation takes into account taking part at the lectures - 2 credits, study of recommended literature -1 credit, exam - 2 credits. Minimal value to obtain evaluation is reach 50% of each evaluation (test and exam) points. Point ratio exam/test is 70/30. Evaluation scale is: A (90-100%), B (80-89%), C (70-79%), D (60-69%), E (50-59%), F (0-49%)

## Learning outcomes:

After completing the lectures and taking the written test, the student will have a deep knowledge which allows her/him to find relationships between structure and physical properties of selected solids. Student is also able to continue with the lectures from the specialized courses like Magnetism, Low Temperature Physics, Structural analysis, Supercondutors etc.metals and also will have the ability to enter into a systematic theoretical and experimental solution of the problems of condenset mater physics.

## Brief outline of the course:

Time schedule of the subject contents is updated in electronic board in AiS2 sw. The subject content is focused in the following main topics: Periodic array of atoms. Fundamental type of lattices. Index systems for crystal planes. Simple crystal structure. Symetry and crystal structure. Point and space groups. Crystal binding and elastic constants. Wave diffraction and the reciprocal lattice. X.ray diffractometry. Brag's law, Laue conditions, scatering of x-rays, Neutrons and neutron scattering, CW - diffractometer, Ewald's sphere, Diffraction on powder samples, Structure factor, Ocupation factor, Atomic displacement factor. Thermal properties. Phonon heat capacity, thermal conductivity. Free electron Fermi gas. Energy bands. Semiconductor crystals. Superconductivity.

#### **Recommended literature:**

- 1. V. Valvoda: Základy krystalografie, SPN Praha, 1982
- 2. Z.T. Durski: Podstawy krystalografii strukturalnej i rentgenovskej, PWN, 1994
- 3. V. Kavečanský: Fyzika tuhých látok, Košice 1983
- 4. CH. Kittel: Úvod do fyziky Pevných látek, Academia, Praha 1985.
- 5. W. D. Callister: Materials Science and Engineering, John Willey aand Sons, New York, 1994.

# 6. Chetan Nayak, Solid State Physics, www.physics.ucla.edu/~nayak/solid_state.pdf

7. Bernard Ruph, X-ray Crystallography, http://www.ruppweb.org/Xray/101index.html

## **Course language:**

English

## Notes:

Lectures can be done at presence form or online using MS Teams. Education form is updated at the begining of the subject. All ppt presentations are accesible in LMS UPJŠ.

## **Course assessment**

Total number of assessed students: 53

А	В	С	D	Е	FX
37.74	26.42	18.87	11.32	3.77	1.89

Provides: prof. RNDr. Pavol Sovák, CSc., RNDr. Jozef Bednarčík, PhD.

Date of last modification: 21.09.2021

·					
University: P. J.	Šafárik Univers	ity in Košice			
Faculty: Faculty	v of Science				
Course ID: ÚG SVG/04	E/ <b>Course n</b> a	Course name: Student Scientific Conference in Geography			
Course type, sco Course type: Recommended Per week: Per Course method	ope and the met l course-load (h study period: d: present	thod: ours):			
Number of EC	l'S credits: 4				
Recommended	semester/trimes	ster of the cours	<b>e:</b> 6.	=	
Course level: I.,	II.				
Prerequisities:					
Conditions for o	course completi	on:			
Learning outco	mes:				
Brief outline of After choosing a work on the top	the course: a topic suggested ic, write a thesis	by supervisors in and defense it be	mplying a geogra	phical problem, t	the students will
Recommended	literature:				
Course languag	je:				
Notes:					
Course assessm Total number of	Course assessment Total number of assessed students: 176				
А	В	С	D	Е	FX
99.43	0.0	0.0	0.0	0.0	0.57
<b>Provides:</b> prof. 1 PhD., RNDr. Jan PhD., RNDr. Ste	RNDr. Peter Spi letta Nestorová-J la Csachová, Ph	šiak, CSc., RND Dická, PhD., Mg D.	r. Dušan Barabas r. Marián Kulla, l	, CSc., RNDr. Al PhD., doc. Ing. K	ena Gessert, Catarína Bónová,
Date of last mo	dification: 01.12	2.2021			

University: P. J. Šafá:	rik University in Košice					
Faculty: Faculty of Science						
<b>Course ID:</b> ÚFV/ DGS/21	Course name: Students` Digital Literacy					
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: ce cse-load (hours): dy period: 28 esent					
Number of ECTS cr	edits: 2					
Recommended seme	ster/trimester of the course: 1.					
Course level: I.						
Prerequisities:						
Conditions for cours Summary evaluation 1. Practical ongoing a 3. Active participation absences allowed) a assignments)	e completion: based on ongoing assessment: assignments and their defense (at least 50% needed) on during face-to-face contact learning in classical or virtual classroom (3 nd during online learning (no absence, uploading all individual ongoing					
Learning outcomes: The student should of digital technologies ( 1. according to the cu 2. for better and more learning and further c	btain and know to apply basic knowledge and skills in working with current mobile phone, tablet, laptop, web technologies): arrent European framework for the Digital competence DigComp and ECDL re effective learning, work and active life in higher education, later lifelong eareer prospects.					
Brief outline of the c 0102. Basic digital s - modern web browse - security, privacy, res 0305. Search, collec - scanning, audio reco - digital notebooks (C - evaluation of digital 0608. Editing and c - cloud and interactiv (text and spreadsheet - work with pdf docu (Kami, Google books 09 10. Organization - modern LMS and cl (Google Classroom, I - time management (C 1113. Digital comm	ourse: skills, DigComp framework, ECDL er and its personalization sponsible use of DT ttion and evaluation of digital content ording and speech resolution, optical resolution (OCR) foogle keep, Evernote, Onenote) resources (Google forms and sections) reating digital content e documents editors - Google, Microsoft, Jupyter) ments, e-books and videos s, Screencasting) n, protection and sharing of digital content oud storage Microsoft team, Google Drive, Dropbox) Google Calendar) unication and cooperation					

- collaborative interactive whiteboards (Jamboard, Whiteboard)

- online presentations and online meetings

(Google presentations, Powerpoint, Google meet, Microsoft teams)

## **Recommended literature:**

1. Carretero Gomez, S., Vuorikari, R. and Punie, Y., DigComp 2.1: The Digital Competence Framework for Citizens with eight proficiency levels and examples of use, Luxembourg, 2017, ISBN 978-92-79-68006-9, https://www.ecdl.sk/

2. Bruff, D. (2019). Intentional Tech: Principles to Guide the Use of Educational Technology in College Teaching (1st edition). Morgantown: West Virginia University Press.

3. Baker, Y. (2020). Microsoft Teams for Education. Amazon Digital Services.

4. Miller, H. (2021). Google Classroom + Google Apps: 2021 Edition. Brentford: Orion Edition Limited.

## **Course language:**

slovak

Notes:

Notes:							
Course assessment							
Total number o		15. 01	1				
А	В	С	D	E	FX		
45.68	3.7	7.41	0.0	43.21	0.0		
Provides: doc. ]	Provides: doc. RNDr. Jozef Hanč, PhD.						
Date of last modification: 26.01.2022							
Approved: doc	. RNDr. Zuzana J	lešková, PhD., p	rof. Mgr. Jaroslav	/ Hofierka, PhD.			

University: P. J. Šafár	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚTVŠ/ LKSp/13	Course name: Summer Course-Rafting of TISA River
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: ce cse-load (hours): dy period: 28 csent
Number of ECTS cr	edits: 2
Recommended seme	ster/trimester of the course:
Course level: I., II.	
Prerequisities:	
Conditions for cours Completion: passed Condition for success - active participation - effective performance paddling	e completion: ful course completion: in line with the study rule of procedure and course guidelines ce of all tasks: carrying a canoe, entering and exiting a canoe, righting a canoe,
Learning outcomes: Content standard: The student demonstr course syllabus and re Performance standard Upon completion of t - implement the acqu - implement basic ski - determine the right - prepare a suitable m	ates relevant knowledge and skills in the field, which content is defined in the ecommended literature. I: he course students are able to meet the performance standard and: ired knowledge in different situations and practice, lls to manipulate a canoe on a waterway, spot for camping, aterial and equipment for camping.
<ul> <li>Brief outline of the c</li> <li>Brief outline of the co</li> <li>1. Assessment of diff</li> <li>2. Safety rules for raff</li> <li>3. Setting up a crew</li> <li>4. Practical skills trained</li> <li>5. Canoe lifting and co</li> <li>6. Putting the canoe in</li> <li>7. Getting in the canoe</li> <li>8. Exiting the canoe on</li> <li>10. Steering</li> <li>a) The pry stroke (on</li> <li>b) The draw stroke</li> </ul>	burse: burse: iculty of waterways ting ning using an empty canoe arrying n the water without a shore contact e ut of the water fast waterways)

11. Capsizing	
12. Commands	
Recommended literature:	
1. JUNGER, J. et al. Turistika a športy v prírode.	Prešov: FHPV PU v Prešove. 2002. ISBN
8080680973.	
Internetové zdroje:	
1. STEJSKAL, T. Vodná turistika. Prešov: PU v	Prešove. 1999.
Dostupné na: https://ulozto.sk/tamhle/UkyxQ2lY	F8qh/name/Nahrane-7-5-2021-v-14-46-39#!
ZGDjBGR2AQtkAzVkAzLkLJWuLwWxZ2ukB	BRLjnGqSomICMmOyZN==
Course language:	
Slovak language	
Notes:	
Course assessment	
Total number of assessed students: 209	
abs	n
37.32	62.68
Provides: Mgr. Dávid Kaško, PhD.	•

**Date of last modification:** 29.03.2022

University: P. J. Šaf	árik University in Košice			
Faculty: Faculty of	Science			
<b>Course ID:</b> ÚFV/ TMEU/15	Course name: Theoretical Mechanics			
Course type, scope Course type: Lectu Recommended cou Per week: 2 / 1 Per Course method: pr	and the method: are / Practice arse-load (hours): r study period: 28 / 14 resent			
Number of ECTS c	redits: 3			
Recommended sem	ester/trimester of the course: 3.			
Course level: I.				
Prerequisities: ÚFV	//VF1a/12			
Conditions for cour	rse completion:			

To successfully complete the course, the student must demonstrate sufficient understanding of all basic concepts and applications of theoretical mechanics. Knowledge of basic concepts at the level of their mathematical definition is required, as well as their physical content and principled applications. The student must be able to actively master the content of the curriculum continuously during the semester, so that he can actively and creatively use the acquired knowledge in solving specific problems in exercises and independent homework. In addition to direct participation in teaching, the student is obliged to independently study professional topics assigned by the teacher and also to develop and present one home assignments. The condition for obtaining credits is, in addition to participation in teaching, also the successful completion of the two written tests from exercises and lectures and the elaboration of home assignments. The minimum limit for passing the exam is to obtain 51% of the total score, which takes into account all required activities with relevant weight.

Rating scale: A - 91% - 100% points, B - 81% - 90% points, C - 71% - 80% points, D - 61% -70% points, E - 51% - 60% points.

## Learning outcomes:

The lecture on Theoretical Mechanics is the first lecture of an extensive university course in theoretical physics, where the student gets acquainted with fundamental theoretical concepts (e.g., generalized coordinates, velocities and momentum, phase space, Hamiltonian Lagrangian ...), which constitute the basis for understanding advanced theoretical methods of advanced courses such as quantum mechanics, statistical physics and quantum field theory. For this reason, attending this lecture is essential for all physics students. In addition to deep physical knowledge, students will also gain practical experience in solving complex problems of mechanics of systems of mass points and mechanics of a rigid body.

## Brief outline of the course:

1. Dynamics of a free system of mass points.

2. Motion of a constrained system of mass points. Constrains and their classification. The principle of virtual work and search for equilibrium positions.

3. D'Alembert's principle. Lagrange equations of the first kind. Generalized coordinates and generalized forces.

4. Lagrange equations of the second kind and generalized potential.

5. Basic properties of Lagrange equations. First integrals of equations of motion: Integral of energy and generalized momentum.

- 6. Integral principles. Variation of functions and integrals. Hamilton's principle.
- 7. Hamilton's function. Hamilton's canonical equations.

8. Mechanics of a perfectly rigid body. Position of a rigid body in space, independent coordinates. The speed of the points of a rigid body.

9. Center of gravity, linear and angular momentums of a rigid body. Tensor of inertia. Euler angles and Euler kinematic equations.

10. Kinetic energy of a rigid body. Euler's equations of motion of a perfectly rigid body.

## **Recommended literature:**

1. Meirovitch L.: Methods of Analytical dynamics, McGraw-Hill, New York, 1970.

2. Taylor T.T.: Mechanics: Classical and Quantum, Pergamon Press, Oxford, 1976.

3. Strelkov S.P.: Mechanics, Mir Publishers, Moscow, 1985.

4. Greiner W.: Classical Mechanics, Springer-Verlag, Berlin, 2010.

5. Goldstein H.: Classical Mechanics, Addison-Wesley, London, 1970.

6. Barger V., Olsson M.: Classical Mechanics: A Modern Perspective, McGraw-Hill, London, 1973.

## **Course language:**

Slovak, English

## Notes:

## **Course assessment**

Total number of assessed students: 44

А	В	С	D	Е	FX
52.27	6.82	9.09	20.45	4.55	6.82

Provides: prof. RNDr. Michal Jaščur, CSc.

Date of last modification: 20.09.2021

University: P. J.	. Šafárik Univers	ity in Košice			
Faculty: Faculty	y of Science				
Course ID: KP TVE/08	urse ID: KPE/       Course name: Theory of Education         E/08       E/08				
Course type, sc Course type: I Recommended Per week: 2 Pe Course metho	ope and the met Practice d course-load (h er study period: d: present	thod: ours): 28			
Number of EC	<b>FS credits:</b> 2				
Recommended	semester/trimes	ster of the cours	<b>e:</b> 4., 6.		
Course level: I.					
Prerequisities:					
Conditions for	course completi	on:			
Learning outco	mes:				
Brief outline of	the course:				
Recommended	literature:				
Course languag	ge:			-	
Notes:					
Course assessment Total number of assessed students: 631					
А	В	С	D	Е	FX
43.11	31.22	16.8	5.07	1.74	2.06
Provides: Mgr. Katarína Petríková, PhD.					
Date of last mo	Date of last modification: 20.06.2022				
Approved: doc.	RNDr. Zuzana J	lešková, PhD., pr	of. Mgr. Jaroslav	Hofierka, PhD.	

University: P. J. Šafárik University in Košice						
Faculty: Faculty of S	cience					
Course ID: ÚFV/ TEP1/03Course name: Theory of the Electromagnetic Field						
Course type, scope a Course type: Lectur Recommended cou Per week: 3 / 1 Per Course method: pro	nd the method: re / Practice rse-load (hours): study period: 42 / 14 esent					
Number of ECTS cr	edits: 5					
Recommended seme	Recommended semester/trimester of the course: 4.					
Course levels I						

Course level: I.

**Prerequisities:** ÚFV/VFM1b/15 or ÚFV/VF1b/03

## **Conditions for course completion:**

To successfully complete the course, the student must demonstrate sufficient understanding of the basics terms, concepts and applications of electromagnetic field theory. Knowledge of basic concepts is required at the level of their mathematical definition, as well as their physical content and specific applications. During the semester, the student must continuously master the content of the curriculum so that he can actively and creatively use the acquired knowledge in solving specific tasks during the exercises and pass continuous written tests taken into account in the overall evaluation of the subject. The condition for obtaining credits is passing 2 continuous written tests in exercises and an oral exam, which consists of theoretical questions covering the entire scope of the course. The credit evaluation of the course takes into account the following student workload: direct teaching (2 credits), self-study (1 credit), individual consultations (1 credit) and assessment (1 credit). 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%), F (0-49%).

## Learning outcomes:

After completing lectures and exercises, the student will have sufficient physical skills, knowledge and mathematical apparatus enabling independent solution of a wide range scientific problems in electromagnetic field theory. The student also gets an overview of applications of electromagnetic field theory in various fields of physics such as electricity, magnetism, optics, etc.

#### Brief outline of the course:

1. Charge density and current density. Continuity equation. Definition of electromagnetic field.

2. System of Maxwell's equations in vacuum: differential formulation of Gauss' law of electrostatics, law of total current. The absence of magnetic monopoles and the law of electromagnetic induction.

3. Scalar and vector potential, gauge transformation. Wave equations for potentials. Energy conservation law in electromagnetic field theory: Poynting vector.

4. Conservation law of momentum of electromagnetic field: Maxwell's stress tensor.

5. Electrostatic field in vacuum and its potential. Potential of charges distributed in space and on surfaces. Boundary conditions on a charged area.

6. Multipole development of charge system potential. Electrostatic field energy. Electrostatic potential energy of a charge system and its multipole development in an external electric field.

7. Dielectric polarization. Vector of electrical induction, dielectric susceptibility and permittivity. Electrostatic field induced by a system of free charges in a dielectric, boundary conditions at the interface of two dielectrics.

8. Magnetic fields of stationary currents in vacuum; Biot-Savart law.

9. Stationary magnetic field of closed elementary current system, magnetic moment. Magnetization of magnets, magnets in the magnetic field of stationary currents.

10. Magnetic field strength, magnetic susceptibility and permeability. Magnetic field of a system of conductive currents in magnetics, boundary conditions at the interface of two magnets.

11. System of Maxwell's equations in the material environment and the conservation law of electromagnetic field energy. Quasi-stationary electromagnetic field.

12. Electromagnetic waves in homogeneous non-conductive medium, plane electromagnetic wave. Monochromatic plane wave and its polarization.

13. Refraction and reflection of a plane monochromatic wave at the interface of two media.

## **Recommended literature:**

Kvasnica J.: Teorie elektromagnetického pole. Academia Praha, 1985.

Bobák A.: Teória elektromagnetického polľa, UPJŠ Košice, 2002.

Bobák A., Vargová E.: Zbierka riešených úloh z elektromagnetického poľa, UPJŠ Košice, 2001. Greiner W.: Classical Electrodynamics, Springer-Verlag, New York, 1998.

## **Course language:**

1. Slovak,

2. English

## Notes:

## Course assessment

Total number of assessed students: 330

А	В	С	D	Е	FX	
26.97	8.79	18.18	21.21	16.67	8.18	

Provides: doc. RNDr. Jozef Strečka, PhD., RNDr. Marek Semjan

## Date of last modification: 19.09.2021