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University I. J. Salarik University in Kusice	University:	P. J.	Šafárik	University	in Košice
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Faculty: Faculty of Science

Course ID: ÚINF/	Course name: Administration of OS
AOS1/15	

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: 1., 3.

Course level: I., II., N

Prerequisities:

Conditions for course completion:

The condition for passing the course is successful realization of a project focused on the network services configuration.

Learning outcomes:

The result of the education is an understanding of the theoretical and practical background of Windows and Linux operating systems and selected network services.

Brief outline of the course:

1. Management of Linux operating system (basic system tools for troubleshooting, system startup, network configuration), 2. File systems (general view), 3. File systems (RAID, LVM), 4. Web hosting services I. (basic concept, APACHE), 5. Web hosting services II. (SQL, HTTPS, security, NGINX), 6. File services I. (SAMBA, NFS), 7. File services II. (FTP), 8. Management of local computer network I. (routing, DHCP), 9. Management of local computer network II. (firewall), 10. VPN, 11. SSH and Proxy, 12. Kernel of the Linux operating system, 13. Administration of the Windows operating system.

Recommended literature:

1. LPIC-1 Exam 102. LPI [online]. Canada: The Linux Professional Institute, 2021 [cit. 2021-9-22]. Dostupné z: https://learning.lpi.org/en/learning-materials/102-500/, 2. Linux - Dokumentační projekt [online]. 4. Praha: Computer Press, 2007 [cit. 2021-9-22]. Dostupné z: https://i.iinfo.cz/files/root/k/LDP_4.pdf, 3. The LPIC2 Exam Prep [online]. Sue B.V. - Open Sourced, 2021 [cit. 2021-9-26]. Dostupné z: https://lpic2book.github.io/src/

Course language:

Slovak or English

Notes:

Content prerequisites: understanding of fundamental concepts of operating systems, computer networks, basic skill in Linux shell (e.g. bash) and Powershell.

Course assessment							
Total number o	f assessed studen	ts: 35					
A B C D E FX							
60.0	20.0	11.43	0.0	8.57	0.0		
Provides: doc. RNDr. JUDr. Pavol Sokol, PhD., RNDr. Tomáš Bajtoš							
Date of last modification: 26.09.2021							
Approved: prof	f. RNDr. Stanisla	v Krajči, PhD.					

University: P. J. Šafárik University in Košice
Faculty: Faculty of Science
Course ID: ÚINF/ ANP/15Course name: Algorithmic unsolved problems
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: 2.
Course level: II.
Prerequisities:
Conditions for course completion: Satisfiable understanding of basic concepts.
Learning outcomes: To introduce the student into most important results about non-existence of an algorithm for solving given problem.
 Brief outline of the course: 13. Axiomatic theories of natural numbers. 46. Definibality of recursive functions. 78. Tarski theorem on undefinability of truth in formalized arithmethic. 9. Godel incompletness theorem. 10. Algorithmic unsolvability of particular mathematical problems. 11. Non-existence of an algorithm for deciding the existence of a solution of Diophantine equations. 12. Reduction of problems and degrees of unsolvability.
 Recommended literature: J. Barwise ed., Handbook of Mathematical Logic, North Holland 1977S. C. Kleene, Introduction to the Metamathematics, Van Nostrand 1952, ruský preklad Moskva 1957. E. Mendelson, Introduction to Mathematical Logic, Van Nostrand 1963, ruský preklad Nauka Moskva 1976. M. Davis, Hilbert's Tenth Problem is Unsolvable, Amer. Math. Monthly,1973, 233269. Ju.V. Matijasevič, Diofantovy Množestva, Usp. Mat. Nauk, 27 (1972), 185222 L. Bukovský, Algoritmicky neriešiteľné problémy, učebný text v elektronickej forma na sieti Novel, PF UPJŠ, Košice, 2003
Course language: Slovak or English
Notes:

Course assessment						
		15. 27	_			
A	В	С	D	E	FX	
100.0	0.0	0.0	0.0	0.0	0.0	
Provides: prof. RNDr. Stanislav Krajči, PhD.						
Date of last modification: 23.11.2021						
Approved: prof	f. RNDr. Stanisla	v Krajči, PhD.				

UDSE INFODMATION I ETTED

	CU	JURSE INFORM	MATION LET I	EK	
University: P. J	. Šafárik Univers	sity in Košice			
Faculty: Facult	y of Science				
Course ID: KF/ AFS/05	Course na	ame: Ancient Ph	ilosophy and Pre	sent Times	
Course type, sc Course type: 1 Recommended Per week: 2 Pe Course metho	cope and the met Practice d course-load (h er study period: od: present	thod: ours): 28			
Number of EC	TS credits: 2				
Recommended	semester/trimes	ster of the cours	e: 2.		
Course level: II	[.				
Prerequisities:					
When impleme 40% - continuo 60% - final test KF citation star In the case of a philosophical te deadline, will b to the same exte	nting the subject us assessment of , or seminar pape ndard for seminar transition to dis exts and procession e assigned point ent as in the face	Student activity er in the range of r and qualification stance education, ing the task in w s (partial assesses -to-face form tea	at seminars, parti 10 A4 standard n papers. students will be vritten form, which nent) and at the e ching.	rm of teaching: ial seminar work pages (with com assigned sub-tas ch must be subm end will prepare	- assignment. pliance with the sks for studying nitted by the set a seminar paper
Learning outco	omes:				
Brief outline of Point out the ro- the 3 pillars of E the interconnec of the issues of society, where t which Europe a and problems o today's form of	the course: ots of Western civ European culture, tedness of ancien thought formation the emergence of and European hun of today if he disc society, thinking	vilization that go reveal the origin nt philosophy an on, the relationsl f mathematical n manity stand. Th covers the founda	back to the Greek s of democracy at d EPISTEME we hip between philo atural science in e student will be ttions and contex- ture.	ks. The ancient C nd critical thinkir ill enable a bette osophy and scien the 17th century able to understan ts leading to serie	Breeks, as one of ng. Emphasizing or understanding nce, and modern v is the pillar on nd the questions ous questions of
Recommended	literature:				
Course languag	ge:				
Notes:					
Course assessm Total number of	1ent f assessed studen	its: 31			
А	В	С	D	Е	FX
80.65	6.45	6.45	0.0	6.45	0.0

Provides: doc. PhDr. Peter Nezník, CSc.

Date of last modification: 24.08.2022

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚINF/ APA1/21	Course name: Approximation algorithms
Course type, scope a Course type: Lectur Recommended cour Per week: 3 Per stu Course method: pre	nd the method: re rse-load (hours): dy period: 42 esent
Number of ECTS cr	edits: 5
Recommended seme	ster/trimester of the course: 3.
Course level: II.	
Prerequisities:	
Conditions for cours Continuous assessme continuous written te Oral final exam.	e completion: nt is awarded on the basis of the quality of homework given in lectures and st.
Learning outcomes: To learn basic conce error probability.	ptions of randomized algorithms and to classify the algorithms due to their
 Brief outline of the c 1. Basic notions of Ph 2. Basic randomized 3. Las Vegas algorith 4. One sided error Mh 5. Two sided bounder 6. Two sided unbounder 7. Classes of random them. 8. Optimisation problemisation 9. Special optimisation 10. Classification of characteristic of the side of the	ourse: robability Theory. computing models and its characterisations. ms. onte Carlo algorithms. d error Monte Carlo algorithms. ized algorithms with polynomial time complexity and relationships between lem, approximation algorithm, relative error, approximation ratio. on problems and approximation solutions. optimisation problems based upon their approximations. its relaxations. ty.
Recommended litera Hromkovič, J.: Algor Randomization, Appr Hromkovič, J.: Comr In: Handbook on Rar Kluwer Publ 2001	Ature: Tithmics for Hard Problems, Introduction to Combinatorial Optimization, Toximation, and Heuristics, Springer=Verlag 2004. The nunication Protocols - An Exemplary Study of the Power of Randomness. The domized Computing, P.Pardalos, S.Rajasekaran, J.Reif, J.Rolim, Eds.,

Hromkovič, J.: Design and analysis of ranodmized algorithms. Springer-Verlag, 2005.

Hromkovič, J.: Einführung in die algorithmischen Konzepte der Informatik, Teubner, 2001. Motwani R. and Raghavan P.: Randomized Algorithms. Cambridge University Press 1995. Mitzenmacher M. and Upfal P.: Probability and Computing: Randomized Algorithms and Probabilistic Analysis. Cambridge University Press 2005.

Course language:

Slovak or English

Notes:

content prerequisites: basics of probability, basics of algorithms and data structures

Course assessment

Total number of assessed students: 95

А	В	С	D	Е	FX
24.21	13.68	23.16	15.79	22.11	1.05

Provides: doc. RNDr. Ondrej Krídlo, PhD.

Date of last modification: 23.11.2021

University: P. J. Šafárik University in Košice						
Faculty: Faculty of S	Science					
Course ID: ÚINF/ UUI1/15	: ÚINF/ Course name: Artificial Intelligence and Cognitive Science					
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: 2., 4.						
Course level: II., N						
Prerequisities:						

Conditions for course completion:

Home work and written tests.

Final exam - written or oral.

Learning outcomes:

The goal of the course is to provide an overview of the extensive field of artificial intelligence and cognitive science. The student can opt to study individually a selected topic from the literature.

Brief outline of the course:

1. Definition and goals of Artificial intelligence and Cognitive Science. Natural intelligence. Intlligence of a machine vs. humnan agent.

2. Knowledge representation in AI (semantic networks, frames), reasoning.

3. Problem solving in state space - uninformed vs informed search, depth-first vs. breadth-first search.

4. Planning and decision making, logic constraints programming, machine learning.

5. Computer vision - image recognition (feature vs structure scene analysis), preprocessing, representation and description of image, object recognition.

6. Natural language processing, artificial neural networks, knowledge systems (structure, characteristics, feedforward vs feedback propagatiion during inference).

- 7. Genetic algorithms and artificial life, distributed AI and multiagent stystems.
- 8. Visual perception and cognition.
- 9. Auditory perception and cognition.

10. Memory, learning and attention.

11. language, thinking and consciousness.

12. Emotions, motivation, attention.

13. Motor system and crossmodal interactions.

Recommended literature:

1. Russell S.J., Norvig P: Artificial Intelligence: A Modern Approach (2nd Edition), Prentice Hall, 2002, ISBN: 0137903952

2. Negnevitsky Michael: Artificial Intelligence: A Guide to Intelligent Systems (2nd Edition), Addison Wesley, 2004, ISBN: 0321204662

3. Poeppel D., Mangun G., Gazzaniga M. (ed.): The Cognitive Neurosciences. 6th ed. MIT Press.

Course language:

Slovak or english

Notes:

Content prerequisities:

basic programing, neurobiology, cognitive psychology, or instructor's consent

Course assessment

Total number of assessed students: 98

А	В	С	D	Е	FX	
61.22	19.39	13.27	4.08	2.04	0.0	
Provides: doc. Ing. Norbert Kopčo, PhD.						
Date of last modification: 23.11.2021						

University: P. J.	. Šafárik Univer	sity in Košice				
Faculty: Faculty	Faculty: Faculty of Science					
Course ID: ÚF BSIM1/14	FV/ Course name: Biomolecular Simulations					
Course type, sc Course type: I Recommended Per week: 2 / 2 Course metho	ope and the me Lecture / Practice I course-load (H 2 Per study per d: present	thod: e iours): iod: 28 / 28				
Number of EC	FS credits: 5					
Recommended	semester/trime	ster of the cours	e: 4.			
Course level: I.	, II.					
Prerequisities:						
Conditions for Elaboration and programs on pro Q/A part.	Conditions for course completion: Elaboration and presentation of the project on given actual subject. Development of own computer programs on project given at the exercises. Exam. Might be substituted by written exam including O/A part.					
Learning outco	mes: actual problema	tics of biomolecu	lar simulations.			
Brief outline of Structural chara as flow of biolo mechanisms. E force fields an Carlo methods approaches. Co reactions, free approaches and	the course: acteristics of bio gical informatio xperimental me d methods of algorithms and omputational char energy evaluat heuristic approa	logical polymers. n. 3D-structure ar thods of structure classical molecul l paralelization. < allenges in biom ion, protein fold uches.	Foldamers. Cer nd function of for e determination ar dynamics. N <i>Ab initio</i> olecular simula ling. Computat	ntral dogma of mo oldamers. Recent v and their limitat Molecular dynam molecular dynam tions - simulation ional complexity,	blecular biology view on enzyme ions. Empirical ics and Monte nics and hybrid ns of chemical nontraditional	
Recommended	literature:					
Actual literature	e recommended	by lecturer.				
Course languag	ge:					
Notes:						
Course assessm Total number of	ent f assessed studer	nts: 56				
Α	В	C	D	E	FX	
76.79	7.14	12.5	1.79	1.79	0.0	
Provides: doc. I	RNDr. Jozef Uli	čný, CSc.				
Date of last mo	dification: 27.0	3.2020				
Approved: prof	. RNDr. Stanisla	w Krajči, PhD.				

University: P. J. Šafá	University: P. J. Šafárik University in Košice				
Faculty: Faculty of S	cience				
Course ID: ÚINF/ PSDU/16	Course name: Case studies in data mining				
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: 4				
Recommended seme	ster/trimester of the course: 3.				
Course level: II.					
Prerequisities:					
Conditions for cours The realization of a p Successful completion mining.	e completion: roject focused on case studies in data mining. on of the written and oral part of the exam focused on case studies in data				
Learning outcomes: Solving practical task data mining methods	cs in the field of data mining. Basic concepts of data mining. Knowledge of				
Brief outline of the c 1. Basic notions in da 2. Data preparation in 3. Methods and algor 4. Methods and algor 5. Extraction of know 6. Case study analysi 7. Case study analysi 8. Application of met 9. Solving practical ta 10. Solving practical 11. Solving practical 12. Testing data mini 13. Testing data mini	ourse: tta mining i data mining ithms of data mining II /ledge from large data volumes s using data mining methods in different application areas s using data mining methods in different application areas II hods for automated analysis of large data volumes asks using appropriate software tools tasks using appropriate software tools II tasks using appropriate software tools III ng algorithms ng algorithms II				
Recommended litera[1] Watt, J., Borhani,and applications. Car[2] Zhao, Y., Cen, Y.:[3] Han, J. and Kamb	R., Katsaggelos, A.K.: Machine learning refined: foundations, algorithms, nbridge: Cambridge University Press, 2016. Data Mining Applications with R. Elsevier Inc. 2014. ber, M.: Data Mining Concepts and Techniques. 3rd Edition, Morgan				

Kaufmann, Burlington, 2011.

[4] Witten, I.E., Frank, E.: Data Mining: Practical Machine Learning Tools and Techniques, Elsevier, 2005.

Course language: Slovak or English					
Notes:					
Course assessn Total number o	nent f assessed studen	ts: 25			
А	В	С	D	Е	FX
100.0	0.0	0.0	0.0	0.0	0.0
Provides: RNDr. Erik Bruoth, PhD., doc. RNDr. L'ubomír Antoni, PhD.					
Date of last modification: 14.11.2021					
Approved: prot	f. RNDr. Stanisla	v Krajči, PhD.			

University: P. J	. Šafárik Univers	ity in Košice			
Faculty: Facult	y of Science				
Course ID: KF/ KDF/05	Course na Centuries	Course name: Chapters from History of Philosophy of 19th and 20th Centuries (General Introduction)			
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: II	- -				
Prerequisities:					
Conditions for	course completi	ion:			
Learning outco	omes:				
Brief outline of	the course:				
Recommended	literature:				
Course languag	ge:				
Notes:	Notes:				
Course assessment Total number of assessed students: 10					
А	В	С	D	Е	FX
50.0	20.0	10.0	0.0	10.0	10.0
Provides: PhDr. Dušan Hruška, PhD.					
Date of last mo	Date of last modification: 03.05.2015				
Approved: prof. RNDr. Stanislav Krajči, PhD.					

University: P. J. Šafá	University: P. J. Šafárik University in Košice					
Faculty: Faculty of S	Science					
Course ID: ÚINF/ KKV1/21	Course name: Classical and quantum computations					
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 2 Per study period: 42 / 28 Course method: present						
Number of ECTS credits: 6						
Recommended semester/trimester of the course: 1., 3.						
Course level: II., N						
Prerequisities:						
Conditions for course completion.						

Successful completion of the subject is conditioned by proper acquisition of basic concepts, algorithms and models and demonstrating the ability to apply them creatively. The acquisition of knowledge takes place:

- continuously during the semester in the form of partial assignments,
- a written test during the semester,
- a written test at the exam,
- oral exam.

In order to receive an evaluation, it is necessary to obtain at least 50% of points from each of the three parts (assignments during the semester, written part of the exam, oral part of the exam). The detailed evaluation method is published in the AIS.

Learning outcomes:

By completing the subject, the student will get:

- knowledge of the classification and design of probabilistic algorithms,

- basic knowledge of the principles of quantum computers and their differences compared to classical computing models,

- knowledge and skills about the design and functioning of quantum computing and become familiar with the most well-known algorithms,

= basic quantum computer programming skills.

Brief outline of the course:

1. Introduction to quantum quantum computers. Basics of classical complexity theory.

- 2. Boolean circuits and their basic properties.
- 3. Probability algorithms.
- 4. BPP class and probability testing.
- 5. Basic properties of circuits and Fermat's test.
- 6. Miller Rabin's test and the position of the BPP class in the hierarchy of complexity models.
- 7. Introduction to quantum computing and mathematical foundations of quantum theory.
- 8. Spectral representation of self-adjoint operators.
- 9. Quantum states and Hilbert vector spaces.
- 10. Basic quantum operators and basic quantum algorithms.

- 11. Quantum teleportation, superdense coding and Grover's algorithm.
- 12. Fourier transformation.
- 13. Shor's algorithm.

Recommended literature:

1. BERMAN,G.P., DOOLEN,G.D., MAINIERI, R., TSIFRINOVIC, V.I. Introduction to Quantum Computers. World Scientific, 2003.

2. GRUSKA, J. Quantum Computing. McGraw-Hill, 1999.

3. JOHNSON, G. A Shortcut Through Time: The Path to the Quantum Computer, Knopf 2003.

4. KITAEV, A.Y., SHEN, A.H., VYALYI, M.N. Classical and Quantum Computation. American Mathematical Society, 2002.

5. NIELSEN, M.A., CHUANG, I.L. Quantum Computation and Quantum Information.

Cambridge University Press, 2000.

6. HIRVENSALO, M., Quantum Computing, Springer 2004

Course language:

Slovak or english

Notes:

Content prerequisites:

Linear algebra, Group theory, Probability theory, Theory of algorithms, Introduction to quantum computers.

Course assessment

Total number of assessed students: 83

А	В	С	D	Е	FX
26.51	40.96	15.66	4.82	2.41	9.64

Provides: prof. RNDr. Gabriel Semanišin, PhD., RNDr. Marek Semjan

Date of last modification: 25.07.2022

	COURSE INFORMATION LETTER					
University: P. J. Šafárik	University in Košice					
Faculty: Faculty of Scie	Faculty: Faculty of Science					
Course ID: ÚINF/ C KMU1/15	ourse name: Coding and multimedial data transition					
Course type, scope and Course type: Lecture / Recommended course Per week: 2 / 1 Per stu Course method: prese	l the method: / Practice 2-load (hours): ady period: 28 / 14 ent					
Number of ECTS cred	its: 4					
Recommended semester	er/trimester of the course: 1., 3.					
Course level: I., II.						
Prerequisities:						
Conditions for course of Homeworks, active part Final written exam, oral	completion: ticipation in laboratory exercises, midterm test. l examination.					
Learning outcomes: Understand the princip of quantization, predic algorithms. Understand	les of lossy compression algorithms. Be able to apply different methods tion and difference procedures in lossy image and sound compression the JPEG and MPEG compression standards.					
 Brief outline of the coultine of	rse: oding and information transfer, compression ratio, criteria of uniquely and prefix lossless codes. distribution of probabilities of occurrences of input characters, relation to ruction, adaptive variants. teger, binary, adaptive versions, advantages and disadvantages of statistical iction methods, JBIG, JPEG-LS standards, PPM. ion methods, LZ77, LZW, use of transformations, BWT, ACB, dynamic mpression, RD function, probabilistic and physiological models for efficient and non-uniform scalar quantization, adaptive versions. optimization according to distribution function, compressors and expanders. ues, prediction methods, adaptive quantization with prediction, DPCM id video coding. lossy coding, orthonormal representations, component analysis, two- tions. nsform, use in image compression, JPEG encoder. signal decomposition, signal synthesis from subbands, use in sound oustic models, MP3, AAC coding. , EZW encoder, use in audio and video coding. on, MPEG standards, adaptive algorithms for streaming and video					

Recommended literature:

- 1. D. Salomon: Data Compression, The Complete Reference, Springer, 2004.
- 2. K. Sayood: Introduction to Data Compression, Morgan Kaufmann, 2012.

Course language:

Slovak or English

Notes:

Course assessment

Total number of assessed students: 21

А	В	С	D	Е	FX
28.57	4.76	28.57	19.05	19.05	0.0
Provides: doc. RNDr. Jozef Jirásek, PhD.					

Date of last modification: 08.01.2022

University: P. J. Šafárik University in Košice						
Faculty: Faculty of S	Faculty: Faculty of Science					
Course ID: ÚMV/ KOA/10	Course name: Combinatorial algorithms					
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 cr	redits: 6					
Recommended seme	ester/trimester of the course: 2., 4.					
Course level: II.						
Prerequisities:						
Conditions for cours The evaluation consists of the elabor approximation of the representation.	se completion: sts of a project (30 points) and an oral exam (70 points). The semester project ration of a computer program that returns the optimal solution or a acceptable optimal solution, respectively, of a selected graph problem given by a suitable					
Learning outcomes: Understanding of b algorithmic aspects of derived from mathem	asic graph algorithm, the close connection between the theoretical and of discrete mathematics, ability to understand how selected algorithms can be natical statements, ability to prove the correctness of algorithms.					
Brief outline of the of Basic notions from g Introduction to algor algorithms, greedy a Trees, spanning trees spanning trees of a g Prim, and Boruvka's Distance in graphs. algorithms) and othe Introduction to networks, th Matchings, maximum weight in bipartite gr Location of centers i Eulerian graphs and Hamiltonian graphs,	course: graph theory. ithms and complexity. Basic types of algorithms - sorting algorithms, search lgorithms. NP-completeness. s and rooted trees. Depth first search, breadth first search. Generating of all graph, number of spanning trees. Minimum spanning tree problem (Kruskal, algorithms). Shortest path problem in (non)oriented (weighted) graphs (various types of r variations of this problem. ork analysis, critical path method. he max-flow min-cut theorem and related concepts. n matchings in bipartite and general graphs, finding a matching with maximum raphs. n graphs, finding a center, absolute center, and a median of a graph. Chinese postman's problem. Travelling salesman problem and approximation algorithms for TSP.					
 Recommended litera 1. G. Chartrand, O.R New York 1993. 2. J.L. Gross, J. Yella 3. D. Jungnickel: Gra 	ature: Oellermann: Applied and Algorithmic Graph Theory, McGraw-Hill, Inc. en: Graph Theory and Its Applications, Chapman & Hall/CRC 2006. aphs, Networks, and Algorithms, Springer-Verlag Berlin 2005.					
1	Dec. 21					

4. J. Plesník: Grafové algoritmy,	Veda Bratislava 1983.
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4. J. Plesník: Grafové algoritmy, Veda Bratislava 1983.					
Course language: Slovak					
Notes:					
Course assess Total number	ment of assessed studer	nts: 99			
А	В	С	D	Е	FX
35.35 26.26 22.22 9.09 5.05 2.02					
Provides: RNDr. Mária Maceková, PhD.					
Date of last modification: 19.04.2022					
Approved: pro	of. RNDr. Stanisla	v Krajči, PhD.			

University: P. J. Šafárik University in Košice					
Faculty: Faculty of S	Faculty: Faculty of Science				
Course ID: KPPaPZ/KK/07	Course name: Communication and Cooperation				
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 cro	edits: 2				
Recommended seme	ster/trimester of the course: 3.				
Course level: II.					
Prerequisities:					
Conditions for cours Evaluation: A condition for stude student will actively solutions. The output for evalu presentation or a vide Learning outcomes: The goal of the subject language and commut The student can dem contexts. The student can d assertiveness, empath The student can apply	e completion: ent evaluation is his active participation in the seminar. It is expected that the participate in the discussions and will express their positions and possible nation will be the development of a project in the form of a Power Point eo on a selected communication topic. et Communication, cooperation is the formation and development of students' nication skills through experiential activities. onstrate an understanding of individual behavior in various communication escribe, explain and evaluate communication techniques (cooperation, ny, negotiation, persuasion) in practical contexts. y these techniques in common communication schemes.				
Brief outline of the c Communication Communication theor Non-verbal communication about active listening Empathy Short conversation communication) Cooperation About the basics of c About types, signs, ty Characteristics of the Small social group (s individual in the grout	ourse: ry ication and its means on (basic components of communication, language means of communication) and effective communication (principles and principles of effective ooperation /pes and factors of cooperation team (positions in the team) tructure, development, characteristics of a small social group, position of the up)				

About leadership (characteristics of the leader, management, leadership styles)

Recommended literature:

Course language:

Notes:

Course assessment

Total number of assessed students: 281

abs	n	Z		
98.22	1.78	0.0		
Provides: Mgr. Ondrej Kalina, PhD., Mgr. Lucia Barbierik, PhD.				
Date of last modification: 31.07.2022				

University: P. J. Šafá	rik University in Košice					
Faculty: Faculty of S	Faculty: Faculty of Science					
Course ID: ÚINF/ VKN/15	Course name: Computational and cognitive neuroscience II					
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., 3.					
Course level: II., N						
Prerequisities:						
Conditions for cours Midterm exam Final exam consisting	g of written and/or oral part					
Learning outcomes: Advanced topics in neuroscience.	computational and cognitive neuroscience, and in the tools used in					
Brief outline of the c 1. Intro: Cognitive ps Theme 1: Topics in c 2. Neural basis of vis 3. Visual object recog 4. Auditory cognition 5. Cortical sound pro 6. Other topics in the Topic 2: Modeling in 7. Intro 8. Connectionism, ST 9. Additive and shum 10. Learning rule Ou 11. Adaptive resonan 12. Statistical and der Topic 3: Current rese 13. Invited lecture	ourse: sychology, neural modeling. ognitive and neural science ion gnition and visual scene analysis h. Echo suppression. Auditory scene analysis cessing. study of brain and main: thinking, consciousness, emotions, motivation cognitive and neural science I'M and LTM modeling ting neural networks. tstar. ce theory. cision-theory modeling arch at UPJS					
Recommended litera 1. KANDEL, E. R., S McGraw-Hill, 2021 I 2. Dayan P and LF A Modeling of Neural S 3. Thagard P: Mind: 978-0262701099	Ature: SCHWARTZ, J. H. and JESSELL, T.M.: Principles of Neural Science. SBN-13: 978-1259642234 bbott: Theoretical Neuroscience - Computational and Mathematical Systems. MIT Press, 2005 ISBN-13: 978-0262541855 Introduction to Cognitive Science, 2nd Edition. Bradford Books. ISBN-13 :					

4. HERTZ, J., KROGH, A. and PALMER R. G.: Introduction to the theory of neural computation. Addison-Wesley 1991 ISBN-13: 978-0201515602

Course language:

Slovak or English

Notes:

Content prerequisites:

basics of neurobiology, cognitive psychology, linear algebra and differential equations, programing, or instructor's consent

Course assessment

Total number of assessed students: 9

А	В	С	D	Е	FX
44.44	11.11	22.22	11.11	11.11	0.0

Provides: doc. Ing. Norbert Kopčo, PhD., RNDr. Keerthi Kumar Doreswamy, Ing. Udbhav Singhal, Mgr. Ondrej Spišák

Date of last modification: 08.01.2022

	COURSE INFORMATION LETTER		
University: P. J. Šafán	rik University in Košice		
Faculty: Faculty of S	cience		
Course ID: ÚINF/ VYZ1/15	Course name: Computational complexity		
Course type, scope a Course type: Lectur Recommended cour Per week: 2 Per stu Course method: pre	nd the method: e •se-load (hours): dy period: 28 sent		
Number of ECTS cro	edits: 4		
Recommended seme	ster/trimester of the course: 1.		
Course level: II., N			
Prerequisities:			
Conditions for cours Oral examination.	e completion:		
Learning outcomes: To give students th completeness.	eoretical background in computational complexity and theory of NP-		
Brief outline of the c 1: Introduction: the no example - the problem	ourse: otion of computational complexity, computational time, computational model, n of sorting, computational complexity as an asymptotic function		

2: Basic computational models: RAM and RASP computers, the cost of an elementary step on these computers, single-tape Turing machine, multi-tape Turing machine, nondeterministic variants of these computational models, transformations among these models with respect to the time complexity

3: The classes P and NP: basic definitions, presenting (un)undirected graphs on the input, 3COL

- the set of all 3-colorable graphs is in NP, 2COL - the set of all 2-colorable graphs is in P, SAT

– the set of satisfiable Boolean formulas is in NP, CNF-SAT - Boolean formulas in conjunctive normal form

4: Variants of P and NP: decision problem, the problem of finding a solution, optimization problem, polynomial conversions among different variants

5: NP-completeness: reducibility in polynomial time and its transitivity, definition of the NP-completeness and its basic properties

6: NP-completeness of SAT

7: Variants of SAT: 3CNF-SAT - satisfiability of Boolean formulas in 3-conjunctive normal form, kCNF-SAT, CNF-SAT - satisfiability in k-conjunctive (conjunctive) normal form, 2CNF-SAT is in P

8: 3COL and its variants: 3COL (the problem of coloring vertices of a graph with 3 colors) in NP-complete, consequently: for each k>3, kCOL (the problem of coloring with k colors) is NP-complete as well

9: Colorability of a planar graph with three colors: presenting a planar graph on the input, the proof of NP-completeness, coloring with a larger number of colors

10: Another NP-complete problems: Exact set cover, Clique, Vertex cover

11: Hamiltonian path: Hamiltonian path in a directed and in undirected graph

12: Subset-sum-like problems: Subset Sum - the problem of whether any subset of the integers sum to precisely a target sum, Partition - the problem of whether a given multiset of positive integers can be partitioned into two subsets with equal sums, a "more relaxed" version of Partition - achieving an approximate equality of the sums, distribution of tasks among K parallel processors

13: Beyond P a NP: a review of the basic complexity classes - L, NL, P, NP, PSpace, NPSpace, ExpTime, NExpTime, ..., simulation of (non)deterministic space in (non)deterministic time, conversions in opposite directions

14: PSpace: QBF - true quantified Boolean formulas, prenex normal form, Pspace completeness of QBF, PSpace = NPSpace

Recommended literature:

1. J.E. Hopcroft, R.Motwani, J.D. Ullman: Introduction to automata theory, languages, and computation, Addison-Wesley, 2007.

2. M. Sipser: Introduction to the Theory of Computation, Thomson, 2nd edition, 2006.

3. L.A.Hemaspaandra, M.Ogihara: Complexity theory companion, EATCS series, texts in computer science, Springer-Verlag, 2002.

4. S. Arora, B. Barak: Computational Complexity: A Modern Approach, Cambridge Univ. Pess, 2009. 5. G.Brassard, P.Bradley: Fundamentals of algorithmics, Prentice Hall, 1996.

6. D.P.Bovet, P.Crescenzi: Introduction to the theory of complexity, Prentice Hall, 1994.

7. C. Calude and J. Hromkovič: Complexity: A Language-Theoretic Point of View, in G.

Rozenberg and A. Salomaa, Handbook of Formal Languages II, Springer, 1997.

Course language:

Slovak or english

Notes:

Content prerequisities:

Basic notions from the theory of automata and formal languages.

Basic skills in programming and design of algorithms (in any programming language). Basics knowledge in mathematical logic, set theory, and graph theory.

Course assessment

Total number of assessed students: 357

А	В	С	D	Е	FX
57.7	15.41	12.04	7.28	7.28	0.28

Provides: prof. RNDr. Viliam Geffert, DrSc.

Date of last modification: 23.11.2021

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of S	cience				
Course ID: ÚINF/ ARP1/15	Course ID: ÚINF/ Course name: Computer architecture ARP1/15				
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: 2., 4.				
Course level: I., II., N	1				
Prerequisities:					
Conditions for cours Homeworks, active pa	e completion: articipation in laboratory exercises, final written exam. Final oral examination.				
Understand the princi Gain basic experience Understand the curre acquainted with the co operation and possibi of computer equipme including setting ther	ples of organization of work of processor and computer on concrete examples. e with programming at the level of machine instructions (Assembler language). ent way a computer communicates with I / O devices. Students will get omponents of current computers, with their properties, connection, principle of lities of use. They will be able to make informed decisions about the purchase ent, identify computer failures; make simpler repairs by replacing modules, n correctly.				
Brief outline of the course: Milestones in computer organization, fundamental limitations. The representation of numbers and the implementation of floating point arithmetic. Combinatorial and sequential circuits, memory organization, RAMs and ROMs. Digital logic level architecture, data path timing, machine cycle. The microarchitecture level, microinstructions and microinstruction control. The instruction set architecture level, data types, addressing modes, instruction types. Instruction execution, pipelining, cache memory. I/O controllers, ports, interrupts, direct memory access. Multicore architectures, processor virtualization. Device drivers, operating system kernel, device-independent software. Laboratory practices and tutorials.					
 Recommended literature: 1. W. Stallings: Computer Organization and Architecture, Pearson, 2018 2. J. Ledin: Modern Computer Architecture and Organization, Packt Publishing, 2020 3. E. Upton, J. Duntemann, R. Roberts, T. Mamtora, B. Everard: Learning Computer Architecture with Raspberry Pi, Wiley, 2016 					
Course language: Slovak or English					
Notes:					

Content prerequisities: understanding of fundamental concepts of computer architecture and design within the scope of a standard undergraduate course. The course is not organized annually.

Course assessment					
Iotal number of	f assessed studen	ts: 60			
Α	В	С	D	Е	FX
16.67	18.33	16.67	23.33	18.33	6.67
Provides: doc. RNDr. Jozef Jirásek, PhD., RNDr. Juraj Šebej, PhD.					
Date of last modification: 23.11.2021					
Approved: prof	Approved: prof. RNDr. Stanislav Krajči, PhD.				

University: P. J. Šafárik University in Košice						
Faculty: Facult	y of Science					
Course ID: ÚIN MSSI/15	NF/ Course n	F/ Course name: Computer science II.				
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present						
Number of EC	TS credits: 4					
Recommended	semester/trime	ster of the cours	se:			
Course level: II	-					
Prerequisities: and ÚINF/AIS1 KKV1/21 and Ú	((ÚINF/KRP1/1 /15) or (ÚINF/S JMV/KOA/10)	5 or ÚINF/ARP1 TU1/16 and (ÚIN	1/15) and ÚINF/0 NF/NEU1/15 or	OPS1/15) or (ÚIN ÚINF/VKN2/22))	IF/LAD1/15 or (ÚINF/	
Conditions for course completion: Appropriate knowledge and competencies from the profile subjects of the study program, demonstrating the ability to synthesize the acquired knowledge and procedures and apply them to the problems of computer science.						
Learning outco Verification of a	mes: acquired student	competencies in	accordance with	the graduate pro-	file.	
 Brief outline of the course: The state exam is focused on one of the following areas: 1. Computer systems and networks, security of computer systems. 2. Information and knowledge systems. 3. Computational complexity, computational models. 4. Methods of artificial intelligence. The examination may also include the basic principles and relationships between the topics of compulsory subjects and possible connections between these topics and the final thesis 						
Recommended literature: Information sources recommended within individual profile subjects.						
Course language: Slovak language or English language						
Notes:						
Course assessment Total number of assessed students: 63						
А	В	С	D	Е	FX	
50.79	19.05	19.05	7.94	3.17	0.0	
Provides:	•	•		·		
Date of last modification: 14.03.2023						

University: P. J. Šafárik University in Košice					
Faculty: Faculty of	Science				
Course ID: ÚINF/ KRP1/15	Course name: Cryptographic protocols				
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	redits: 4				
Recommended sem	ester/trimester of the course: 1., 3.				
Course level: I., II.,	N				
Prerequisities:					
Conditions for cour Homeworks active	rse completion:				

Homeworks, active participation in laboratory exercises, presentation of a selected topic at a course seminar. Final written exam.

Learning outcomes:

Understand the problems of designing secure cryptographic protocols for authentication and key management. Know the ways to compromise them and be able to apply methods of proving their correctness. Control some automated verification tools. Understand and be able to apply advanced cryptographic techniques in various application fields - signature schemes, electronic banking, electronic voting. Orientation in current problems of implementation of cryptographic protocols.

Brief outline of the course:

Authentication and key establishment using shared and public key cryptography, key agreement protocols, conference key agreement, zero-knowledge protocols, provable security. Protocol architecture and formal definition, goals for authentication and key establishment, formal verification. Digital signature, implementation, trust distribution.

The final seminar with presentations on selected current topics - electronic banking, electronic voting, secure communication ...

Recommended literature:

1. Colin Boyd, Anish Mathuria: Protocols for Authentication and Key Establishment, Springer, 2020

2. Douglas R. Stinson, Maura B. Paterson: Cryptography: Theory and Practice, Fourth Edition, Chapman & Hall/CRC, 2018

Paul C. van Oorschot: Computer Security and the Internet: Tools and Jewels, Springer, 2020
 Peter Ryan, Steve Schneider: Modeling and Analysis of Security Protocols, Addison-Wesley, 2001

Course language:

Slovak or English

Notes:

Content prerequisities: understanding of fundamental cryptographic concepts and primitives (as taught in the course KRS/15 or in the scope of the textbook "Understanding Cryptography" by Christof Paar and Jan Pelzl).

The course is not organized annually.

Course assessment Total number of assessed students: 27					
ABCDEFX					
29.63	7.41	14.81	29.63	14.81	3.7
Provides: doc. RNDr. Jozef Jirásek, PhD., RNDr. Rastislav Krivoš-Belluš, PhD.					
Date of last modification: 08.01.2022					
Approved: prof. RNDr. Stanislav Krajči, PhD.					

University: P. J. Šafá	rik University in Košice					
Faculty: Faculty of S	Faculty: Faculty of Science					
Course ID: ÚINF/ DIPa/18	ÚINF/ Course name: Diploma thesis project					
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 cro	edits: 2					
Recommended seme	ster/trimester of the cours	e: 2.				
Course level: II.						
Prerequisities:						
Conditions for cours regular consultaions development accorni connected with the di	Conditions for course completion: regular consultaions with diploma thesis supervisor about the progress of diploma project development accornig to agreed schedule, regular consultations, study of available resources connected with the diploma thesis assignments, first results					
Learning outcomes: Student understands	Learning outcomes: Student understands the methods of investigation and he/she gains first results.					
Brief outline of the course: The subject is tied to the diploma thesis. The evaluation is based on student's approach to the diploma thesis and the partially achieved results.						
Recommended literature: - Recommended literature that is included in the diploma thesis assignments - Regulations for diploma thesis preparation - Template for diploma thesis						
Course language: Slovak or English						
Notes:						
Course assessment Total number of asses	ssed students: 50					
	abs	n				
100.0 0.0						
Provides:						
Date of last modification: 12.11.2021						
Approved: prof. RNDr. Stanislav Krajči, PhD.						

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of Science					
Course ID: ÚINF/ DIPb/18	Course name: Diploma thesis project				
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 cours	e: 3.			
Course level: II.					
Prerequisities:					
Conditions for cours regular consultaions development accornig	e completion: with diploma thesis supe g to agreed schedule, regula	ervisor about the progress of diploma project r consultations			
Learning outcomes: Student has enough k part based on the pro	mowledge to prepare a theored blem analysis and drawing c	retical part of the diploma thesis and for practical conclusions.			
Brief outline of the c The subject is tied to diploma thesis and th	Brief outline of the course: The subject is tied to the diploma thesis. The evaluation is based on student's approach to the diploma thesis and the partially achieved results.				
Recommended literature: - Recommended literature that is included in the diploma thesis assignments - Regulations for diploma thesis preparation - Template for diploma thesis					
Course language: Slovak or English	Course language: Slovak or English				
Notes:					
Course assessment Total number of assessed students: 47					
	abs n				
95.74 4.26					
Provides:					
Date of last modification: 12.11.2021					
Approved: prof. RNDr. Stanislav Krajči, PhD.					
University: P. J. Šafá	rik University in Košice				
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Faculty: Faculty of S	cience				
Course ID: ÚINF/ DPO/15	Course name: Doctoral Thesis and its Defence				
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	nd the method: rse-load (hours): y period: sent				
Number of ECTS cr	edits: 20				
Recommended seme	ster/trimester of the course:				
Course level: II.					
Prerequisities:					
Conditions for cours The diploma thesis is fraud and must meet 21/2021, which lays Košice and its comport and in the process of	e completion: the result of the student's own work. It must not show elements of academic the criteria of good research practice defined in the Rector's Decision no. down the rules for assessing plagiarism at Pavol Jozef Šafárik University in nents. Fulfillment of the criteria is verified mainly in the process of supervision thesis defense. Failure to do so is reason for disciplinary action.				
Learning outcomes: The diploma thesis d field of study, acquist profile of the graduate selected field problem of content, formal and 1/2011 on the basic ro the 1st, 2nd and comb	emonstrates mastery of extended theory and professional terminology of the ition of knowledge, skills and competencies in accordance with the declared e of the study program, as well as the ability to apply them creatively in solving hs. Student demonstrates the ability of independent professional work in terms I ethical. Further details on the diploma thesis are determined by Directive no. equirements of final theses and the Study Regulations of UPJŠ in Košice for bined 1st and 2nd degree.				
Brief outline of the c 1. Elaboration of the 2, Presentation of the 3. Answering questio	ourse: diploma thesis in accordance with the instructions of the supervisor. results of the diploma thesis before the examination commission. ns related to the topic of the diploma thesis within the discussion.				
Recommended litera The recommended litera diploma thesis.	ture: erature is determined individually in accordance with the topic of the				
Course language: Slovak and optionally	v English.				
Notes:					

Course assessment Total number of assessed students: 60						
A B C D E FX						
56.67	20.0	16.67	6.67	0.0	0.0	
Provides:						
Date of last modification: 19.11.2021						
Approved: prof. RNDr. Stanislav Krajči, PhD.						

University: P. J. Šafá	rik University in Košice					
Faculty: Faculty of Science						
Course ID: ÚINF/ FAN/15	Course name: Forensic analysis					
Course type, scope a Course type: Lectur Recommended cour Per week: 2 / 2 Per Course method: pre Number of ECTS cr	nd the method: re / Practice rse-load (hours): study period: 28 / 28 esent edits: 4					
Recommended seme	ester/trimester of the course: 2., 4.					
Course level: I., II.						
Prerequisities: ÚINF	7/BPD1/15					
Conditions for course The condition for pa Written final theoretic project focused on the Learning outcomes: The result of the educe procedures in digital their usage in security	ssing the course is: 1. Homeworks (25% of the total number of points), 2. cal exam (40% of the total number of points), 3. Successful realization of a e forensic analysis of a specific case (35% of the total number of points).					
Brief outline of the c 1. Introduction to for incident handling and digital evidence, 6. E Windows operating s data), 10. Analysis of of mobile devices, 13	ourse: rensic analysis, 2. Legal and ethical aspects of forensic analysis, 3. Security I the first response, 4. Live forensic analysis, 5. Identification and acquiring of xtraction of digital evidence and forensic images handling, 7. Analysis of the ystem I. (basic aspects), 8. Analysis of the Windows operating system II. (user Linux operating system, 11. Network forensic analysis, 12. Forensic analysis 8. Evaluation and presentation of digital evidence analysis, 14. OSINT.					
Recommended litera 1. ARNES, André. D Andrea. The little han Forensics and Volatil Forensic Analysis. 1. Harlan. Investigating	iture: igital Forensics. 1. Wiley, 2017. ISBN 978-1119262381, 2. FORTUNA, ndbook of Windows Memory Analysis: Just some thoughts about memory, ity!. 1. 2019. ISBN 978-1798027400, 3. CARRIER, Brian. File System Addison-Wesley Professional, 2005. ISBN 978-0321268174, 4. CARVEY, Windows Systems. 1. Academic Press, 2018. ISBN 978-0128114155.					
Course language: Slovak or English						

Notes:

Content prerequisites: understanding of fundamental concepts of operating systems, computer networks, basic skill in Linux shell (e.g. bash) and Powershell.

Course assessment Total number of assessed students: 23						
A B C D E FX						
34.78	30.43	17.39	8.7	8.7	0.0	
Provides: doc. RNDr. JUDr. Pavol Sokol, PhD., RNDr. Tomáš Bajtoš						
Date of last modification: 04.01.2022						
Approved: prof. RNDr. Stanislav Krajči, PhD.						

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚINF/ ZNA1/21	Course name: Foundations of knowledge systems
Course type, scope a Course type: Lectur Recommended cour Per week: 3 Per stu Course method: pre	nd the method: re rse-load (hours): dy period: 42 esent
Number of ECTS cr	edits: 4
Recommended seme	ster/trimester of the course: 2.
Course level: II.	
Prerequisities:	
Conditions for cours Test of theoretical kn Written and oral exar	e completion: owledge in the middle of the semester. n.
Learning outcomes: The goal is to teach st in database and know	rudents some advanced applications of logic into computer science, especially redge systems.
Brief outline of the c 1. logic formulas, ser 2. Herbrand model, c 3. SLD-resolution an 4. logic and database 5. logic and expert sy 6. basic notions of La 7. basic notions of Fu 8. basic algorithms of 9. optimal table deco 10. intercontextual st 11. Direct products an 12. Applications on r	ourse: nantic, models and logical inference onstruction and usability d query, SLD trees s, relational databases, deductive databases stems attice Theory and Formal Concept Analysis (FCA) azzy logic and Fuzzy extension of FCA f FCA mposition, factorisation ructures, bonds and choosing of optimal bonds eal data
Recommended litera Shawn Hedman. A fi computability and co Shan-Hwei Nienhuys Springer-Verlag, ISB Kristian Kersting. Ar IOS Press, ISBN 1-55 Nilsson U., Maluszyn Bělohlávek R.: Fuzzy Plenum Publishers, N	 nture: rst course in logic: An introduction to model theory, proof theory, mplexity. Oxford university press, ISBN 0–19–852980–5, 2006. a-Cheng, Ronald de Wolf. Foundations of Inductive Logic Programming. N 3-540-62927-0, 1997. a Inductive Logic Programming Approach to Statistical Relational Learning, 8603-674-2, 2006. a Iski J.: Logic, Programming and Prolog, John Wiley & Sons Ltd. 1995. b Relational Systems: Foundations and Principles. Kluwer, Academic/ Jew York, 2002.

Ganter B., Wille R.: Formal Concept Analysis: Mathematical Foundations, Springer Berlin, 1999.

Course language Slovak or Engli	ge: ish					
Notes: content prerequ	isites: basics of l	ogic, introductio	on to computer sc	eience		
Course assessment Total number of assessed students: 82						
А	В	С	D	Е	FX	
56.1	56.1 2.44 18.29 7.32 12.2 3.66					
Provides: doc. RNDr. Ondrej Krídlo, PhD.						
Date of last modification: 23.11.2021						
Approved: prot	f. RNDr. Stanisla	v Krajči, PhD.				

University: P. J. Šafárik University in Košice						
Faculty: Faculty of S	Faculty: Faculty of Science					
Course ID: KF/ DF2p/03	Course name: History of Philosophy 2 (General Introduction)					
Course type, scope a 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 ci	redits: 4					
Recommended semester/trimester of the course:						
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 o	f assessed studen	ts: 746					
А	В	С	D	E	FX		
60.59	14.21	12.6	8.58	3.35	0.67		
Provides: doc. PhDr. Peter Nezník, CSc.							
Date of last modification: 11.07.2022							
Approved: prot	Approved: prof. RNDr. Stanislav Krajči, PhD.						

University: P. J. Šafárik University in Košice						
Faculty: Faculty of	Faculty: Faculty of Science					
Course ID: KF/ IH2/03	Course name: Idea Humanitas 2 (General Introduction)					
Course type, scope Course type: Prac Recommended co Per week: 2 Per s Course method: p	and the method: tice urse-load (hours): tudy period: 28 resent					
Number of ECTS	eredits: 2					
Recommended sen	nester/trimester of the course: 3.					
Course level: II.						
Prerequisities.						

Conditions for course completion:

100% graded credit: 40% (evaluated participation in seminars, processing of partial seminar work - separate assignment) 60% (final seminar work - student project). In the case of implementation of the classical form of teaching - face-to-face - active participation of the student in the seminar; study and reflection of assigned philosophical texts, attempt to interpret them. In the case of the introduction of distance education (as was the case due to Covid-19), the student will have to actively fulfill tasks of a partial nature, where increased demands will be placed on the student and his independent work with philosophical texts and literature. Tasks will be assigned to the students by the teacher on an ongoing basis. The student must study the assigned philosophical texts, think through and process them, submit them as a seminar paper, i.e. in written form. In both cases, the study of literature is necessary to pass the subject. The conclusion of the subject is the preparation of a seminar paper - the final seminar paper - in the range of at least 10 - 12 pages of A4 (with compliance with the bibliographic standard of the Department of Philosophy (KF) for seminar and qualification papers).

Learning outcomes:

To supplement and expand the interest of natural science students in social science issues related to the issues of the development of philosophy, science and human leadership, which are manifested in the urgent problems of today's world and society. Special emphasis is placed on the formation of humanistic ideas, their origin, transformation and possible pitfalls and risks. In addition to thinking about serious questions of the past and present, it also includes thinking about the present and the current contexts of major topics in philosophy and Western culture in particular. Therefore, the preparation and implementation of a program aimed at cooperation with alternative directions of pedagogy in the conditions of our transforming education system is understood as a practical output.

Brief outline of the course:

The age of the image of the world. Doubt as a principle of philosophy. The emergence of the image of the world (Weltbild); the differences of ancient theoria, medieval scientia, the emergence of mathematical natural science. Science as an operation (Betrieb); institutionalization of science. Philosophy, science and the modern world. The movement of human life: acceptance, defense, freedom as struggle, submission to finitude. The modern world and the search for meaning. Bureaucracy, impersonality, predominance of technocratic approaches. Fatigue as a modern threat

to Europe. The paths to freedom lead through the rediscovery of one's own Self and creativity. The basic condition for the educability of any education is the care of the soul. The crisis of European humanity. Antiquity. Philosophy - the emergence of a special community of people, the beginnings of education - paideia. The winding road of leadership. The origin and birthplace of calculating thinking. Europe and the post-European era. Care of the soul as a basic idea of Patočka's philosophy. The difference in the position of Plato and Democritus in understanding the care of the soul. The idea of caring for the soul and Aristotle.

Recommended literature:

Hadot, P.: What is ancient philosophy. Transl. M. Křížová. Prague: Vyšehrad 2017. Hegel, G.
W. F.: Phenomenology of Spirit. Prague: NČSAV 1960 Husserl, E.: The Crisis of European Humanity and Philosophy. In: Crisis of European sciences and transcendental phenomenology.
Prague: Academie 1996. Mokrejš, A.: Eros as a Theme of Greek Thought. Prague: Triton 2009.
Patočka, J.: Péče o duši I. Prague. OIKOYMENH 1996. Patočka, J.: Care of the soul II. Prague.
OIKOYMENH 1999. Vernant, J.-P.: The beginnings of Greek thought. Prague: OIKOYMENH 1995. Wright von, G.H.: Humanism as a life attitude. Bratislava: Kalligram 2001.

Course language:

Notes:

Course assessment

Total number of assessed students: 12

А	В	С	D	Е	FX
91.67	8.33	0.0	0.0	0.0	0.0

Provides: doc. PhDr. Peter Nezník, CSc.

Date of last modification: 24.08.2022

University: P. J. Šafá	rik University in Košice						
Faculty: Faculty of Science							
Course ID: ÚINF/ ANO/15	Course name: Image analysis						
Course type, scope a Course type: Lectur Recommended cou 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: 4						
Recommended seme	ster/trimester of the course: 1., 3.						
Course level: I., II.							
Prerequisities:							
Conditions for course Rules of the final exa on the practical assig Rules to pass the sub calculated based on t	e completion: Immination: two parts of the final exam - theoretical oral exam and disscussion nment. Dject: Get at least 50% from both parts of the final exam. The grade will be he result from the final exam and assignments during semester.						
Learning outcomes: To examine selected evaluate them on pra	computer vision methods. To get an ability to implement chosen solutions and ctical problems.						
Brief outline of the c 1. Introduction to con 2. Image processin mathematical morpho 3. Segmentation, edg 4. Recognition, featu 5. Textures, image al 6. Third dimension in 7. Structure from mo	ourse: nputer vision, scanning, representation, and properties of images, noise. g, point operators, convolution, Fourier transformation, binary iamge, ology. e detection, Hough transform, active contour model. res, machine learning. ignment and stitching. n images, epipolar geometry, depth information, 3D reconstruction. tion, Kalman filter, particle filter, SLAM.						
Recommended litera 1. SZELISKI, Richar Texts in computer sc 2. ŠONKA, MIlan, F Machine Vision. Cen 3. ŠONKA, Milan a digitalizovaných obra pohybujících se objek dveřmi (Grada). 4. ŠIKUDOVÁ, Eler	d. Computer Vision: Algorithms and Applications. London: Springer, 2010. lence. ISBN 978-1-84882-934-3. ILAVÁČ, Václav a Roger BOYLE: Image Processing, Analysis, and gage Learning, 2014. ISBN 978-1-133-59360-7. Václav HLAVÁČ. Počítačové vidění: první česká kniha o zpracování azů ; rozpoznávání objektů v obrazech ; analýza trojrozměrných a ktů ; příklady aplikací počítačového vidění. Praha: Grada, 1992. Nestůjte za a. Počítačové videnie: detekcia a rozpoznávanie objektov. Praha: Wikina,						

Course language:

Slovak language. English is required for reading recommended literature and OpenCV library documentation.

Notes:						
Course assessment						
Total number o	f assessed studen	ts: 38				
А	В	С	D	Е	FX	
28.95	21.05	18.42	7.89	23.68	0.0	
Provides: doc. 1	Provides: doc. Ing. Zoltán Tomori, CSc., RNDr. Miroslav Opiela, PhD.					
Date of last modification: 22.09.2021						
Approved: prof	f. RNDr. Stanisla	v Krajči, PhD.				

University: P. J.	Šafárik Univers	ity in Košice					
Faculty: Faculty	of Science						
Course ID: ÚIN MIN1/15	Course ID: ÚINF/ Course name: Informatics for medicine MIN1/15						
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 ECT	S credits: 2						
Recommended s	emester/trimes	ster of the cours	e: 3.				
Course level: I.,	II.						
Prerequisities:							
Conditions for c Conditions for co Conditions for th	ourse completi ontinuous evalu ne final evaluatio	on: ation: activity on on: Oral and writ	excercises, hom ten exam	eworks, test			
Learning outcom To present an ap conditions for so	nes: plication of con -called safety-re	nputer science in elevant domain.	medicine domai	n with emphasi	s on the specific		
Brief outline of the course: Introduction to medical informatics. Clinical workflow. Healthcare services. SW projects in the medical domain. Development methodologies in SW projects in the medical domain. Agile methods in medical projects, eXtreme programming, fast methods versus robust methods. Development tools in SW projects in the medical domain.							
Recommended literature: 1. Company literature of SIEMENS. Available on-line: http://www.siemens.com 2. Company literature of SYNGO. Available on-line: http://www.syngo.com							
Course language Slovak or Englis	e: h						
Notes: Content prerequi	sities: foundation	ons of software e	ngineering				
Course assessment Total number of assessed students: 87							
A	A B C D E FX						
78.16	78.16 21.84 0.0 0.0 0.0 0.0						
Provides: Ing. M	arián Zorkovsk	ý					
Date of last mod	Date of last modification: 17.11.2021						
Approved: prof. RNDr. Stanislav Krajči, PhD.							

Faculty: Faculty of Science Course ID: ÚINF/ Course name: Informatics for medicine MIN2/15 Course name: Informatics for medicine MIN2/15 Course type, scope and the method: Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present Number of ECTS credits: 3 Recommended semester/trimester of the course: 4. Course level: 1., II. Prerequisities: ÚINF/MIN1/15 Conditions for course completion: Conditions for course completion: Conditions for continuous evaluation: homeworks, test Conditions for the final evaluation: oral and written part of exam Learning outcomes: Point out the application of informatics in the medical domain, taking into account the specifies for the so-called safety-relevant domain. Brief outline of the course: Medical standards and protocols. Integration testing. Project management in the medical domain.						
Course ID: ÚINF/ MIN2/15 Course name: Informatics for medicine Course type, scope and the method: Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present Number of ECTS credits: 3 Recommended semester/trimester of the course: 4. Course level: I., II. Prerequisities: ÚINF/MIN1/15 Conditions for course completion: Conditions for continuous evaluation: homeworks, test Conditions for the final evaluation: oral and written part of exam Learning outcomes: Point out the application of informatics in the medical domain, taking into account the specifies for the so-called safety-relevant domain. Brief outline of the course: Medical standards and protocols. Integration testing. Project management in the medical domain, the medical domain.						
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present Number of ECTS credits: 3 Recommended semester/trimester of the course: 4. Course level: 1., II. Prerequisities: ÚINF/MIN1/15 Conditions for course completion: Conditions for continuous evaluation: homeworks, test Conditions for the final evaluation: oral and written part of exam Learning outcomes: Point out the application of informatics in the medical domain, taking into account the specifics for the so-called safety-relevant domain. Brief outline of the course: Medical standards and protocols. Integration testing. Project management in the medical domain.						
Number of ECTS credits: 3 Recommended semester/trimester of the course: 4. Course level: I., II. Prerequisities: ÚINF/MIN1/15 Conditions for course completion: Conditions for continuous evaluation: homeworks, test Conditions for the final evaluation: oral and written part of exam Learning outcomes: Point out the application of informatics in the medical domain, taking into account the specifics for the so-called safety-relevant domain. Brief outline of the course: Medical standards and protocols. Integration testing. Project management in the medical domain.						
Recommended semester/trimester of the course: 4. Course level: I., II. Prerequisities: ÚINF/MIN1/15 Conditions for course completion: Conditions for continuous evaluation: homeworks, test Conditions for the final evaluation: oral and written part of exam Learning outcomes: Point out the application of informatics in the medical domain, taking into account the specifics for the so-called safety-relevant domain. Brief outline of the course: Medical standards and protocols. Integration testing. Project management in the medical domain.						
Course level: I., II. Prerequisities: ÚINF/MIN1/15 Conditions for course completion: Conditions for continuous evaluation: homeworks, test Conditions for the final evaluation: oral and written part of exam Learning outcomes: Point out the application of informatics in the medical domain, taking into account the specifics for the so-called safety-relevant domain. Brief outline of the course: Medical standards and protocols. Integration testing. Project management in the medical domain.						
 Prerequisities: ÚINF/MIN1/15 Conditions for course completion: Conditions for continuous evaluation: homeworks, test Conditions for the final evaluation: oral and written part of exam Learning outcomes: Point out the application of informatics in the medical domain, taking into account the specifics for the so-called safety-relevant domain. Brief outline of the course: Medical standards and protocols. Integration testing. Project management in the medical domain. 						
 Conditions for course completion: Conditions for continuous evaluation: homeworks, test Conditions for the final evaluation: oral and written part of exam Learning outcomes: Point out the application of informatics in the medical domain, taking into account the specifics for the so-called safety-relevant domain. Brief outline of the course: Medical standards and protocols. Integration testing. Project management in the medical domain. 						
 Learning outcomes: Point out the application of informatics in the medical domain, taking into account the specifics for the so-called safety-relevant domain. Brief outline of the course: Medical standards and protocols. Integration testing. Project management in the medical domain. 						
Brief outline of the course: Medical standards and protocols. Integration testing. Project management in the medical domain.						
Quality management in the medical domain. CM - configuration management. Organization and management of the company's SW.						
Recommended literature: 1. Company literature of SIEMENS. Available on-line: http://www.siemens.com 2. Company literature of SYNGO. Available on-line: http://www.syngo.com						
Course language: Slovak or English						
Notes:						
Course assessment Total number of assessed students: 13						
A B C D E FX						
46.15 23.08 7.69 7.69 15.38 0.0						
Provides: Ing. Marián Zorkovský						
Date of last modification: 17.11.2021						
Approved: prof. RNDr. Stanislav Krajči, PhD.						

University: P. J. Ša	University: P. J. Šafárik University in Košice						
Faculty: Faculty of	Science						
Course ID: ÚINF/ AIS1/15	F/ Course name: Information systems architecture						
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: 2.				
Course level: II.							
Prerequisities:							
Conditions for cou Work on project. Written and oral ex	rse completi amination	on:					
Learning outcome To provide an ove introduce the funda	Learning outcomes: To provide an overview of the modern methodologies of information system development. To introduce the fundamental principles of conceptual modelling of information systems.						
Brief outline of the course: System, information system, information pyramid. Conceptualisation of information systems. ISO model of the architecture of an information system. Introduction to MDA, software development life cycle based on MDA. Model, metamodel, modelling language. Model transformation and marking models. Entity types. Relationship types. Cardinality constraints. Integrity constraints. Taxonomies Domain events. Use cases. State transition diagrams.							
Recommended lite 1. http://www.omg. 2. Ian Sommerville 3. Anneke Kleppe, Addison-Wesley 20 4. Scott Berkun, Th	rature: org , Software Ei Wim Bast, Jo 003 ne Art Of Pro	ngineering, Addi os B Warmer, MI ject Managemen	son-Wesley 2005 DA Explained, th t, O Reilly 2005	e Model Driven	Architecture,		
Course language: Slovak or English							
Notes: Content prerequisities: Software engineering, UML, OOP							
Course assessment Total number of assessed students: 190							
A	В	С	D	Е	FX		
21.05	30.0	25.79	8.42	11.05	3.68		
Provides: prof. RN	Dr. Gabriel S	emanišin, PhD.					

Date of last modification: 23.11.2021

University: P. J. Ša	fárik Univers	ity in Košice					
Faculty: Faculty of	Science						
Course ID: ÚINF/ TIK1/15	urse ID: ÚINF/ Course name: Information theory, encoding						
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: 1.				
Course level: II.							
Prerequisities:							
Conditions for cou Satisfiable knowled	r se completi dge of basic n	on: notions					
Learning outcome To understand prin	s: ciples of loss	less coding and e	entropy and their	mutual relationsh	nip.		
Brief outline of the 1. Word and langua 2. Decodable codes 3. Prefix-free codes 4. Krafto-McMillan 57. Entropy 89. Price of code 10. Shannon's theo 11. Fano's code sec 12. Huffman's optim	e course: age s n inequality sequence rem juence mal code sequ	uence					
Recommended life 1. D. Hankersson, Compression, CRC 2. J. Adámek: Kód 3. J. Černý: Entróp	G. Harris, P. J G. Harris, P. J Pr., 1998. ovaní a teorie ia a informác	Johnson: Introduc e informace, Vyda ia v kybernetike,	ction to Informat avatelství ČVUT Alfa 1981	ion Theory and D , Praha 1994	Data		
Course language: Slovak							
Notes:							
Course assessment Total number of as	t sessed studen	ıts: 99					
A	В	С	D	Е	FX		
61.62	14.14	14.14	3.03	0.0	7.07		
Provides: prof. RN	Dr. Stanislav	Krajči, PhD.					

Date of last modification: 23.11.2021

University: P. J. Šafá	rik University in Košice						
Faculty: Faculty of S	cience						
Course ID: ÚINF/ Course name: Introduction to data science IDS18/18 Course name: Introduction to data science							
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 cro	edits: 3						
Recommended seme	ster/trimester of the course: 2.						
Course level: II.							
Prerequisities:							
Evaluation is based of of the defense of the semester. Student can answers to questions the lecture. From the on the sum of the po course, the student ne	on the practical and the theoretical part of the exam. Practical exam consists semestral project, based on the report the student submit until the end of the a get at most 50 points from the practical part. The theoretical part consists of related to the theory of underlying methods presented during the course of theoretical part the student can get at most 50 points. The final grade is based ints the student has got for the practical and the theoretical part. To pass the eed to get at least 60 points.						
Learning outcomes: Knowledge of basic p a data mining project of data and modeling its results into produc	principles and concepts of data mining, practical experience with working on , such that, ability to analyze the problem and available data, pre=processing g, ability to evaluate the success of a data mining project and application of etion.						
Brief outline of the c 1) Introduction: Histo 2) Clustering: simila DBSCAN, evaluation 3) Frequent patterns: rules, frequent sequen 4) Prediction: the ta parameters of mod discriminant function 5) Recommendation recommendation via	ourse: bry of data mining, CRISP-DM method. rities of various data types, agglomerative clustering, k-means clustering, n of clusters. frequent itemsets, algorithms of Apriori, Eclat and FP-Growth, association nees, evaluation of the quality of patterns. sk of regression and classification, linear model, parameters and hyper- els, regularization, bias and variance, cross-validation, Bayes model, hyper-parameter tuning, quality of models. techniques: explicit and implicit feedback, collaborative filtering, matrix factorization, quality of recommendation.						

6) Data pre-processing: data quality, noise, missing values, transformation of data, normalization, attribute selection, dimension reduction, sampling.

Recommended literature:

- Peter Flach (2012). Machine Learning: The Art and Science of Algorithms that Make Sense of Data. Cambridge University Press.

- Jiawei Han, Micheline Kamber, Jian Pei (2011). Data Mining: Concepts and Techniques.

Morgan Kaufmann.

- Pang-Ning Tan, Michael Steinbach, Vipin Kumar (2005). Introduction to Data Mining. Addison Wesley.

- João Moreira, Andre de Carvalho,	Tomáš Horváth (2018). A	General Introduction to	Data
Analytics. Wiley.			

Course language:

Slovak or English

Notes:

Content prerequisities: derivation, working with vectors and matrices, programming, data structures

Course assessment

Total number of assessed students: 5

А	В	С	D	Е	FX	
40.0	20.0	0.0	40.0	0.0	0.0	
Provides: RNDr. Tomáš Horváth, PhD.						
Date of last modification: 12.11.2021						

	COURSE INFORMATION LETTER
University: P. J. Šafá	arik University in Košice
Faculty: Faculty of S	Science
Course ID: ÚINF/ PAI1/21	Course name: Legal aspects of informatics
Course type, scope a Course type: Lectu Recommended cou Per week: 2 / 1 Per Course method: pr	and the method: re / Practice arse-load (hours): study period: 28 / 14 resent
Number of ECTS ci	redits: 3
Recommended seme	ester/trimester of the course: 2., 4.
Course level: I., II.	
Prerequisities:	
Conditions for cour The condition for pa	se completion: ssing the course is the final written exam (score at least 50%).
Learning outcomes: The result of the ed of information and o aspecs of IT, intellec	ucation is an understanding of the necessary knowledge in the legal aspects communications technologies (ICT law), especially data protection, criminal stual property, information society services.
Brief outline of the 1. Introduction to in 3. Trust-building se information society contracts, 5. Electron data I protection c of data subjects, 7. I cookies, 8. Digital si on the Internet, 10. Intellectual property open licenses, 12. Co	course: Iformation technology law, 2. Electronic legal acts and electronic signature, prvices, 4. Electronic commerce I introduction to electronic commerce, services, types of electronic contracts, legal aspects of e-shops, concluding nic commerce II consumer protection, 6. Protection of privacy and personal of personality, definition of personal data, processing of personal data, rights Protection of privacy and personal data II online identifiers - IP addresses, ngle market - digital single market - geoblocking, shared economy, 9. Liability Intellectual property law I industrial property law, copyright rights, 11. law II legal aspects of computer programs, databases, license agreements, omputer crime I., 13. Computer crime II., 14. Cyber and information security.
Recommended liter 1. HUSOVEC, Mart komunikačných tech Jozef, Martin DAŇK MUNK a Soňa SOP TINCT, 2021. ISBN RÓZENEELDOVÁ	ature: in, Matúš MESARČÍK a Jozef ANDRAŠKO. Právo informačných a nológií 1. Bratislava: TINCT, 2021. ISBN 9788097383701, 2. ANDRAŠKO, KO, Petra DRAŽOVÁ, Zoltán GYURÁSZ, Matúš MESARČÍK, Rastislav ÚCHOVÁ. Právo informačných a komunikačných technológií 2. Bratislava: 9788097383725, 3. HUČKOVÁ, Regina, Diana TREŠČÁKOVÁ a Laura Právo informačných a komunikačných technológií Košice: Univerzita

Pavla Jozefa Šafárika v Košiciach, 2020. ISBN 9788081529108.

Course language:

Slovak

Notes:

Course assessment Total number of assessed students: 77							
A B C D E FX							
20.78	22.08	18.18	11.69	22.08	5.19		
Provides: doc. RNDr. JUDr. Pavol Sokol, PhD.							
Date of last modification: 04.01.2022							
Approved: prof	Approved: prof. RNDr. Stanislav Krajči, PhD.						

University: P. J	. Šafárik Univer	sity in Košice					
Faculty: Facult	y of Science						
Course ID: ÚIN LAD1/15	Course ID: ÚINF/ Course name: Logical aspects of databases						
Course type, sc Course type: 1 Recommended Per week: 2 Pe Course metho	ope and the mo Lecture d course-load (er study period d: present	ethod: hours): : 28					
Number of EC	FS credits: 4						
Recommended	semester/trime	ester of the cours	se: 2.				
Course level: II	, N						
Prerequisities:							
Conditions for Satisfiable unde	course comple erstanding of ba	tion: sic concepts.					
Learning outco Ability to corre	mes: ctly formalize d	atabases.					
 Brief outline of 13. Basic cond 4. Formalization 5. Conjunctive 6. Conjunctive 7. Relations bet 810. Relationa 1112. Relation 	the course: cepts of logic – a n of a table and queries calculus ween conjunctival algebra ns of different m	a symbol, a term, a database ve calculus and co odels of database	a formula, an int onjunctive querie	erpretation s			
Recommended literature: https://ics.upjs.sk/~krajci/skola/vyucba/ucebneTexty/LAD-presentation.pdf							
Course languag Slovak	ge:						
Notes:							
Course assessment Total number of assessed students: 93							
А	B C D E FX						
44.09	44.09 18.28 17.2 10.75 7.53 2.15						
Provides: prof.	RNDr. Stanislav	v Krajči, PhD.					
Date of last mo	dification: 23.1	1.2021					
Approved: prof	. RNDr. Stanisl	av Krajči, PhD.					

University: P. J. Šafárik University in Košice						
Faculty: Faculty of Science						
Course ID: ÚINF/ STU1/16	Course name: Machine learning					
Course type, scope a Course type: Lectu 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	edits: 5					
Recommended seme	ester/trimester of the course: 2.					
Course level: II.						
Prerequisities:						
Conditions for cours The realization of a practical tasks. Succe learning, classification on machine learning,	se completion: project focused on the application of machine solution methods in solving essful completion of two written tests based on machine learning, probabilistic on tasks. Successful completion of the written and oral part of the exam based , probabilistic learning, classification tasks.					
Learning outcomes: The result of education will gain the ability intelligence. Can wo	on is an understanding of the basic principles of machine learning. The student to analyze data using selected methods of machine learning and artificial rk with a selected tool for modeling neural networks.					
 Brief outline of the of 1. Learning algorithm numbering. 2. Boolean formulas representation. 3. Probabilistic learn and credibility. 4. Probabilistic learn 5. Relationships betwithe least squares met 6. Linear modeling, g Classification. 7. Linear modeling ut 8. VC (Vapnik - Cerv 9. Bayesian approach 10. Clustering. 11. Hidden Markov 11. 	course: ns, concepts, hypotheses. Training and learning, learning by construction and and their representation. Learning algorithms for monocells. Hypothesis space ing. An estimate of the number of examples needed to achieve some accuracy ing and consistent algorithms. veen attribute sets and predicted variables. Regression. Linear modeling using hod of deviations. generalization, nonlinear responses from a linear model, data validation. using probability theory and maximum confidence. vonenkis) dimension of its relation to perceptrons. h to learning. SVM. models.					
Recommended litera 1. ANTHONY, Mart University Press, 199 2. BROWNLEE, Jas	ature: in a Norman BIGGS. Computational Learning Theory, Cambridge 97. ISBN 978-0521599221. on. Machine Learning Mastery With Python. 2019.					

3. WATT, Jeremy, Reza BORHANI a Aggelos K. KATSAGGELOS. Machine learning refined: foundations, algorithms, and applications. Cambridge: Cambridge University Press, 2016. ISBN 978-1-107-12352-6.

Course language:

Slovak language or English language

Notes:

Course assessment

Total number of assessed students: 60

А	В	С	D	Е	FX
36.67	18.33	26.67	10.0	8.33	0.0
Provides: doc. RNDr. Ľubomír Antoni, PhD., doc. RNDr. Gabriela Andrejková, CSc.					

Date of last modification: 31.03.2022

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ MPJ1/15	Course name: Modern programming languages				
Course type, scope a Course type: Lectur Recommended cou Per week: 1 / 2 Per Course method: pro	and the method: re / Practice rse-load (hours): study period: 14 / 28 esent				
Number of ECTS cr	edits: 4				
Recommended seme	ester/trimester of the course: 2., 4.				
Course level: I., II.					
Prerequisities:					
Conditions for course Demonstration of addevaluation, the ability project. Written works during Written and oral examples	se completion: equate mastery of the content standard of the subject in the ongoing and final y to formulate a problem in the acquired terminology and solve it within a g the semester, project. m.				
Learning outcomes: During the complet sophisticated program	ion of the course, the student will master the use of standard and more nming models and techniques within .NET.				
 Brief outline of the of the of 1) Common type sy Runtime (CLR)NI 2) Imperative and p Module. 3) Generic programm 4) Functional program 5) LINQ and queryin 6) Event programmin 7) Communication b 8) Graphic primitives 9) Database application 10) Vector programmins 11) MS Office programmins 12) .NET Core. Tupling 	stem, boxing, Common Intermediate Language (CIL), Common Language ET Framework. procedural programming. OOP, libraries, classes, assembly, reflection and hing - parametric polymorphism. mming - lambda expressions. ag data structures. ng - delegates. etween windows. Design of new controls. s and Chart. ions, ADO.NET, Entity Framework. hing - operator overloading, indexer. amming using C#. e vs record.				
Recommended litera 1. J. Glynn, Cs. Törö ISBN-10: †186100766 2. A. Troelsen , Ph. J Programming, 2021,	ature: k et al, Professional Windows GUI Programming Using C#, 2002, Wrox, 63 apikse, Pro C# 9 with .NET 5 : Foundational Principles and Practices in Apress, ISBN10 1484269381				

3. J. Albahari, C# 9.0 in a Nutshell : The Definitive Reference, 2021, O'Reilly Media, ISBN10 1098100964

4. C. Solis, C. Schrotenboer, Illustrated C# 7 : The C# Language Presented Clearly, Concisely, and Visually, 2018, Apress, ISBN10 1484232879

1						
Course language: Slovak or English.						
hing, mid-term	and final evaluat	tion will be by di	stance form.			
Course assessment Total number of assessed students: 155						
В	С	D	Е	FX		
13 19.35 25.16 20.65 17.42 1.29						
Provides: doc. RNDr. Csaba Török, CSc.						
Date of last modification: 23.11.2021						
RNDr. Stanislav	v Krajči, PhD.					
	hing, mid-term nt assessed studen B 19.35 NDr. Csaba Tör afication: 23.11 RNDr. Stanisla	ing, mid-term and final evaluation hing, mid-term and final evaluation nt assessed students: 155 B C 19.35 25.16 NDr. Csaba Török, CSc. ification: 23.11.2021 RNDr. Stanislav Krajči, PhD.	int assessed students: 155 BCD 19.35 25.16 20.65 NDr. Csaba Török, CSc. ification: 23.11.2021 RNDr. Stanislav Krajči, PhD.	in hing, mid-term and final evaluation will be by distance form. nt assessed students: 155 B C D 19.35 25.16 20.65 NDr. Csaba Török, CSc. affication: 23.11.2021 RNDr. Stanislav Krajči, PhD.		

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ NEU1/15	Course name: Neural networks				
Course type, scope an Course type: Lecture Recommended cour Per week: 2 / 1 Per s Course method: pres	nd the method: e / Practice rse-load (hours): study period: 28 / 14 sent				
Number of ECTS cre	edits: 5				
Recommended semes	ster/trimester of the course: 1., 3.				
Course level: II.					
Prerequisities:					
Conditions for course Successful realization completion of two w networks and the co Demonstration of kno	e completion: n of a project focused on the applications of neural networks. Successful written tests at 60% which are focused on various architectures of neural nnections with other areas of computer science - automata, fuzzy logic. weldge focused on neural network methods and their application in the exam.				
Learning outcomes: Knowledge of basic networks in various algorithmic problems.	paradigms of neural networks. Knowledge about applications of neural fields. Ability to assess the applicability of neural networks in solving				
 Brief outline of the contract of the	ples. Mathematical model of neuron and neural network. Perceptrons. Linear uptation process (learning), perceptron convergence, multiple perceptrons. ver of single input neural networks, neuromata. Simulation of automata using ral networks, hidden neurons, adaptation process (learning), feedback method its variants. etworks, algorithm for training recurrent networks. Examples of use.				
5. Self-organization o 6. Networks with le approximations networks.	f neural networks and Kohonen neural networks, learning algorithm, use. ocal neurons, RBF networks, networks with semi - local units. RBF				
7. Written test I. Ne automaton, recurrent networks.	curomat for regular language. neural network to deterministic finite state backpropagation algorithm and its applications, Kohonen ane RBF neural				
8. Convolutional neurfor image processing.9 Deep neural network	al networks. Basic knowledge of convolution. Convolutional neural networks				
10. Graph neural network 11. Deductive systems	vorks, structure, learning and applications. s of fuzzy logic. Fuzzy neural networks and their use. Fuzzy controller.				

12. Universal approximation using neural networks, Kolmogorov theorem. Approximation properties layered neural networks.

13. Solving practical problems using neural networks.

14. Written test II. Convolution and convolutional neural networks, deep neural networks, graph neural networks, construction of fuzzy regulator, Kolmogorov theorem and idea of its proof.

Recommended literature:

1. Y. Bengio: Learning Deep Architectures for AI, Foundations and Trends in ML, Vol. 2, No. 1 , 2009, pp. 1-127 $\#\!\!\!/$

2. I. Goodfellow, Y. Bengio and A. Courville: Deep Learning, MIT Press book, 2016, ISBN-13: 978-0262035613

https://www.deeplearningbook.org/ ##

3. M. H. Hassoun: Fundamentals of artificial neural networks. MIT Press, Cambridge, 1995. ## 4. J. Hertz, A. Krogh, R.G. Palmer: Introduction to the theory of neural computation, Addison-Wesley, 1991. ##

5. V. Kvasnička a kol.: Úvod do teórie neurónových sietí, IRIS, Bratislava, 1997. ##

6. P. Sinčák, G. Andrejková: Neurónové siete. I. diel: Dopredné siete, II. diel: Rekurentné a modulárne siete, Košice, 1997. ##

7. J. Šíma, R. Neruda: Teoretické otázky neuronových sití, Matfyzpress, MFF UK, Praha, 1996. ##

8. F. Scarselli, M. Gori, Ah Ch. Tsoi, M. Hagenbuchner, and G. Monfardini: The Graph Neural Network Model. IEEE TRANSACTIONS ON NEURAL NETWORKS, VOL. 20, NO. 1, JANUARY 2009 ##

Course language:

Slovak or English

Notes:

For ERASMUS students:

It is necessary to know a model of artificial neurons, its computation and its setting, layered neural networks and backpropagation training algorithm.

Course assessment

Total number of assessed students: 244

А	В	С	D	Е	FX
18.85	15.57	24.59	19.26	17.21	4.51

Provides: doc. RNDr. L'ubomír Antoni, PhD., doc. RNDr. Gabriela Andrejková, CSc.

Date of last modification: 20.09.2021

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚINF/ NSQL/17	Course name: NoSQL databases
Course type, scope a Course type: Lectur Recommended cour Per week: 1 / 1 Per Course method: pre	nd the method: re / Practice rse-load (hours): study period: 14 / 14 esent
Number of ECTS cr	edits: 3
Recommended seme	ster/trimester of the course: 2., 4.
Course level: II.	
Prerequisities:	
Conditions for cours Conditions for contin Conditions for the fir	e completion: uous evaulation: Active attendance at seminars. al evaluation: Implementation and defense of final project.
Learning outcomes: Know properties of c NoSQL databases (Re the appropriate kind of	lifferent kinds of NoSQL databases, have an practical experience with given edis, Cassandra, Neo4j, Mongo DB) from program code. Gain skills to identify of NoSQL database for given purpose.
 Brief outline of the c 1. Big data, types of 1 2. Data representation 3. Key-value databas 4. Column-oriented d 5. Graph databases. 6. Document-oriented 	ourse: NoSQL databases. 1 formats es. latabases. d databases.
Recommended litera 1.HARRISON G.: No ISBN 978-1-4842-13 2. HILLS T.: NoSQL Software. Technics P	Ature: ext Generation Databases: NoSQL, NewSQL, and Big Data. Apress, 2015. 30-8. and SQL Data Modeling: Bringing Together Data, Semantics, and ublications, 2016. ISBN 978-1-6346-2109-0
Course language: Slovak or English	
Notes: Content prerequisitie besics of relationa da	s: programming at PAZ1c level - unrestanding of storage layer principles, tabases (SQL language)

Course assessment Total number of assessed students: 26							
A B C D E FX							
46.15	15.38	26.92	7.69	3.85	0.0		
Provides: RNDr. Peter Gurský, PhD.							
Date of last modification: 04.01.2022							
Approved: prof. RNDr. Stanislav Krajči, PhD.							

University: P. J. Šafárik University in Košice					
Faculty: Faculty of S	cience				
Course ID: ÚFV/ NOT1a/03	Course name: Nontraditional Optimization Techniques I				
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 credits: 5

Recommended semester/trimester of the course: 3.

Course level: I., II.

Prerequisities:

Conditions for course completion:

Oral examination (50%), results and quality of the

personal presentation of the projects (50%).

Monitoring progress in solving applied projects. From given set of problems, the student must pick 1 to 3 projects and develop functioning implementation of the solution in form of computer program. In case of more challenging problems, collaborative work of students is acceptable, but each student must be able to present her/his individual contribution.

Learning outcomes:

To familiarize students with biologically and physically inspired optimization, simulation and prediction techniques. To expand students' creativity and programming skills by applying heuristic techniques in solving applied problems.

Upon successful completion of course, student shall possess knowledge about most typical non-traditional optimization techniques, as well as practical experience of solving concrete problems.

Brief outline of the course:

1. Fundamentals terms and definitions of optimization theory. Physical laws as optimization tasks. Variational principle.

2. Model optimization problems. Basic types of objective functions. Classification of optimization methods. Computational scaling of optimization methods. Big O notation. Parallelization, Metcalf's law, Amdahl's bottleneck.

3. Exhaustive search, Gradient-based optimization techniques.

4. Evolutionary algorithms. Canonical Genetic algorithm. Genetic algorithms as Markov processes. Statistical Mechanics description of Genetic Algorithms.

5. Monte Carlo simulation and simulated annealing. Metropolis algorithm and statistics of sampling in solution space.

6. Swarm optimization. Ant algorithms.

7. Cellular Automata and their applications in simulations of complex systems.

8. data structures and representation of solution space and optimization problems. Compression of information and symmetry. Manifolds.

9. Generators. grammars and languages. Genetic programming. AST and operations on AST representation of programs.

- 10. Fractals. Lindenmayer systems. Life-like and agent-based models.
- 11. Evolutionary games. Evolution of cooperation.
- 12. Fundamentals of Neural Networks. Stochastic gradient optimization.

Recommended literature:

Hartmann, A. K., Rieger, H., Optimization Algorithms in Physics, Wiley, 2002
Reeves, C. R., Rowe, J. E., Genetic Algorithms: Principles and perspectives, Kluwer, 2003
Mitchell, M., Complexity. A Guided Tour, Oxford University Press, 2009
Solé, R. V., Phase Transitions, Princeton University Press, 2011
Ilachinski, A., Cellular Automata. A Discrete universe, World Scientific, 2002
Haykin, S., Neural Networks. A Comprehensive Foundation, Prentice-Hall, 1999
Actual literature and data related to problem sets

Course language:

English language is essential for students as "lingua franca" for the latest advancements and applications of optimization techniques.

Notes:

The subject is taught using direct contact form. Should the epidemiological situation (or other relevant circumstances) mandate, the distant form will be used, preferentially using MS Teams learning environment.

Course assessment

Total number of assessed students: 94

А	В	С	D	Е	FX
68.09	19.15	7.45	2.13	3.19	0.0

Provides: doc. RNDr. Jozef Uličný, CSc.

Date of last modification: 22.11.2021

University: P. J.	Šafárik Univ	ersity in Košice					
Faculty: Faculty	of Science						
Course ID: ÚFV NOT1b/03	Course ID: ÚFV/ Course name: Nontraditional Optimization Techniques II NOT1b/03						
Course type, sco Course type: L Recommended Per week: 2 / 2 Course method	ope and the placture / Pract course-load Per study p d: present	nethod: tice (hours): eriod: 28 / 28					
Number of ECT	S credits: 5						
Recommended	semester/trii	nester of the cours	e: 4.				
Course level: I.,	II.						
Prerequisities:							
Conditions for of Presentation of the Should corona-w	course complete the project in virus quaranti	letion: written form. Oral ne persist, written r	exam and discuss eport and answer	ion of the presen to posed question	nted project.		
Learning outcome By using examp interpretation of including parasi	mes: les from the l complex sys te/host coevo	biology to learn app tems. Introduction lution.	lications of optin to new paradigm	nization techniques in the area of s	ues on study and systems biology,		
Brief outline of Complex system optimization te simulated annea dynamics, prot bioinformatics.	Brief outline of the course: Complex systems, emergent behavior. Evolutionary theory and memetics. Application of optimization techniques on complex systems. Application of methods /genetic algorithms, simulated annealing, taboo search/ on selected problems of biomolecular simulations. Molecular dynamics, protein folding. Population dynamics, metabolic networks and complexity in bioinformatics						
Recommended The actual scien	literature: tific papers.						
Course languag	e:						
Notes:	Notes:						
Course assessment Total number of assessed students: 55							
A	В	С	D	Е	FX		
87.27	87.27 5.45 5.45 1.82 0.0 0.0						
Provides: doc. F	RNDr. Jozef U	Jličný, CSc.					
Date of last modification: 08.09.2021							
Approved: prof. RNDr. Stanislav Krajči, PhD.							

University: P. J. Šafárik University in Košice				
Faculty: Faculty of S	science			
Course ID: ÚINF/ PDB1/15	Course name: Organization and data processing			
Course type, scope a Course type: Lectur Recommended cou Per week: 2 / 1 Per Course method: pro	and the method: re / Practice rse-load (hours): study period: 28 / 14 esent			
Number of ECTS cr	redits: 4			
Recommended seme	ester/trimester of the course: 3.			
Course level: II.				
Prerequisities:				
Conditions for cours Conditions for the fin final test	se completion: nal evaluation:			
Learning outcomes: To understand the pr when solving optimiz	rinciples of database management systems. To be able to use the knowledge zation problems over big data and managing parallel and distributed databases.			
Brief outline of the of 1. Data representation 2. Tree-based indexind 3. Working with low 4. Creation of cluster 5. Hash-based indexind 6. Enumeration of re 7. Case study: praction 8. Transaction manag 9. Crash recovery 10. Parallel database 11. Distributed data security and data condistribution of table of Recommended literation	n, disk and file organization, ng methods B+tree, R-tree, -level classes to working with files red and unclustered indexes ng methods, external sorting, lational operators, query optimization, cal DB optimalization gement, s, evaluation of relational operators in parallel databases bases, evaluation of relational operators in distributed databases, database sistency, recovery management in distributed database, distributed trasactions, replicas ature:			
1. R. RAMAKRISH Education, 2003 2. A. SILBERSCHA Hill Higher Educatio	NAN, J. GEHRKE: Database Management Systems, McGraw Hill Higher TZ, H. F. KORTH, S. SUDARSHAN: Database system concepts, McGraw on, 2006			
Course language: Slovak or English				
Notes: Content prerequisitie	es: SQL language (DBS1a), basics of programming (PAZ1a)			

Course assessment Total number of assessed students: 129							
A B C D E FX							
28.68	20.93	14.73	11.63	21.71	2.33		
Provides: RNDr. Peter Gurský, PhD.							
Date of last modification: 04.01.2022							
Approved: prof. RNDr. Stanislav Krajči, PhD.							
University: P. J. Šafárik University in Košice							
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Faculty: Faculty of S	Faculty: Faculty of Science						
Course ID: ÚINF/ PDS1/21Course name: Parallel and distributed systems							
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 credits: 5							

Recommended semester/trimester of the course: 2.

Course level: II., N

Prerequisities:

Conditions for course completion:

Home assignments, class project from tutorials, midterm written exam. Final written and oral exam.

Learning outcomes:

Understand the principles, basic problems and algorithms of parallel programming. Be able to implement synchronization procedures and manage and use interprocess communication. Master the basics of GPU programming. Understand the differences between parallel and distributed computational models. Master basic distributed algorithms and know how to implement them. Understand the problems of creating a distributed system environment and know how to solve them. Be able to use distributed environments in practical applications.

Brief outline of the course:

Parallel architectures, parallel computational model, access to shared memory. Basic algorithms, scaling, optimality. Effective methods of parallel search and sorting. Working in a GPU environment. Distributed computational model, communication protocols, characteristics of distributed systems. Intercomputer communication, distributed synchronization algorithms, transactions, termination and deadlock detection. Consistency issues with distributed memory sharing. Distributed application environment. Reliable calculations in an environment with errors.

Recommended literature:

1. J. JáJá: An Introduction to Parallel Algorithms, Addison-Wesley, 1992, ISBN 0-201-54856-9

2. P. Sanders, K. Mehlhorn, M. Dietzfelbinger, R. Dementiev: Sequential and Parallel Algorithms and Data Structures, Springer, 2019

- 3. Sukumar Ghosh: Distributed Systems and Algorithms (Second Edition), CRC Press 2014
- 4. M. Raynal: Distributed Algorithms for Message-Passing Systems, Springer, 2013
- 5. Gerard Tel: Introduction to Distributed Algorithms, Cambridge University Press, 2001

Course language:

Slovak or English

Notes:

Content prerequisities: basic of concurrent programming, basic of operating system principles

Course assessment Total number of assessed students: 47						
А	A B C D E FX					
19.15	6.38 17.02 17.02 25.53 14.89					
Provides: doc. RNDr. Jozef Jirásek, PhD., RNDr. Rastislav Krivoš-Belluš, PhD., Bc. Marián Dvorský, RNDr. Ladislav Mikeš, PhD.						
Date of last modification: 23.11.2021						
Approved: prof. RNDr. Stanislav Krajči, PhD.						

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ PDSI1/15	Course name: Pro-seminar to diploma thesis in informatics				
Course type, scope a Course type: Practi Recommended cou Per week: 2 Per stu Course method: pro	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	redits: 2				
Recommended seme	ester/trimester of the cours	e: 1			
Course level: II.					
Prerequisities:					
Conditions for cours Evaluation of the stu Evaluation of the acl basis of his / her repo	se completion: dent's paper with a focus on nieved results of the student ort and the created diploma v	the issue of the diploma thesis. during the semester on the diploma thesis on the vebsite.			
Learning outcomes: To inform students about areas of informatics they are suitable to work in diploma theses. In the end of semester students have to prepared themes of diploma theses, goals and recommended study literature.					
Brief outline of the course: The seminar is oriented to problems prospective to preparations of Diploma theses.					
 Recommended literature: 1. MEŠKO, D., KATUŠČÁK, D. Akademická príručka. 1. vyd. Vydavateľstvo Osveta : Martin, 2004. 316 s. ISBN 80-8063-150-6 2. ISO 690: 1987 Documentation - Bibliographic references. Content, form and structure. 3. ISO 2145: 1978 Documentation - Numbering of divisions and subdivisions in written documents. 4. Eco, U.: Jak napsat diplomovou práci, z taliančiny Come si fa una tesi di laures, Milano, 1977, Olomouc, Votobiax. 5. Professional and scientific literature related to the diploma thesis according to the recommendation of the thesis supervisor. 					
Course language: Slovak or English					
Notes:					
Course assessment Total number of asse	ssed students: 90				
	abs	n			
	97.78	2.22			

Provides: doc. RNDr. Jozef Jirásek, PhD., doc. RNDr. Ondrej Krídlo, PhD.

Date of last modification: 08.01.2022

University: P. J. Šafárik University in Košice
Faculty: Faculty of Science
Course ID: KPPaPZ/PPZMg/12 Course name: Psychology and Health Psychology (Master's Study)
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 1 / 2 Per study period: 14 / 28 Course method: present
Number of ECTS credits: 4
Recommended semester/trimester of the course:
Course level: II.
Prerequisities:
Conditions for the continuous assessment during the semester: Active work (maximum 5 points, 2 absences are allowed). Preparation, presentation and discussion on a selected topic - max. 15 points. Written examination (maximum 30 points). Conditions for admission to the exam: min. 25 points. Conditions for the final assessment: Exam: written form (max. 50 points, min. 25 points) Conditions for successful completion of the course: participation in lessons, fulfillment of assignments and at least 66 points from the overall evaluation. Detailed information in the electronic bulletin board of the course in AIS2. The teaching of the subject will be realized by a combined method.
Learning outcomes: The student will understand the basic concepts and theories of health psychology, can explain salutogenic factors as well as the consequences of risk behavior related to health. He is able to apply the knowledge especially in the field of prevention of burnout syndrome and support of mental health in the work of a teacher.
Brief outline of the course:1 Introduction to health psychology2 Psychoimmunology3 Personality factors and health4 Social support as a protective factor in relation to health5 Subjective well-being6 Stress and stressful situations and ways to manage them7 Burnout syndrome8 Health-promoting behavior, mental hygiene9 Health risk behavior10 School as an important factor of health
Recommended literature: Křivohlavý, J.: Psychologie zdraví. Portál, Praha 2001.

Křivohlavý, J.: Psychologie nemoci. Grada, Praha, 2002.

Křivohlavý, J.: Psychologie moudrosti a dobrého života. Grada, Praha, 2009.

Kebza, V.: Psychosociální determinanty zdraví. Academia, Praha 2005.

Kahneman, D., Diener, E., Schwarz, N.(Eds), Well-Being. The Foundations of Hedonic

Psychology. New York, Russell Sage Foundation, 2003.

Kaplan, R. M.: Zdravie a správanie človeka. SPN, Bratislava 1996.

Sarafino, E. P.: Health Psychology. Biopsychosocial interactions. John Wiley and sons 1994.

Baštecký, J., Šavlík, J., Šimek, J. 1993. Psychosomatická medicína. Praha: Grada

Tress, W., Krusse, J., Ott, J.: Základní psychosomatická péče. Portál, Praha 2008.

Course language:

slovak

Notes:

Course assessment

Total number of assessed students: 226

А	В	С	D	Е	FX
19.47	25.22	25.66	13.27	15.93	0.44

Provides: PhDr. Anna Janovská, PhD., Mgr. Lucia Barbierik, PhD.

Date of last modification: 07.07.2021

University: P. J. Šafárik University in Košice			
Faculty: Faculty of So	Faculty: Faculty of Science		
Course ID: ÚINF/ RPBI/20	Course name: Resolving computer security incidents		
Course type, scope an Course type: Practic Recommended cour Per week: 3 Per stue Course method: pre	nd the method: ce rse-load (hours): dy period: 42 esent		

Number of ECTS credits: 3

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

Course level: I., II.

Prerequisities:

Conditions for course completion:

The condition for passing the course are homeworks (50% of the total number of points) and the final practical task (50% of the total number of points).

Learning outcomes:

The result of the education is an understanding of the basic approaches to solving computer security incidents from procedural and legal requirements to ways of identifying the security incident and the method of its technical solution.

Brief outline of the course:

1. Introduction to computer security incident hadling and response, 2. The process of handling and response to computer security incidents and computer security incident response teams, 3. Legal aspects of the computer security incidents handling, 4. Preparing for the security incidents handling and the first response, 5. Introduction to digital forensic analysis, 6. Incident handling and response to computer security incidents in the field of malware, 7. Incident handling and response to network security incidents I., 9. Incident handling and response to network security incidents I., 10. Incident handling and response to computer security incident security incidents in the field of web applications I., 11. Incident handling and response to cloud security incidents, 13. Incident handling and response to cloud security incidents, 14. Final assignment.

Recommended literature:

1. MURDOCH, Don. Blue Team Handbook: Incident Response Edition: A condensed field guide for the Cyber Security Incident Responder. South Carolina, United States: CreateSpace Independent Publishing Platform, 2014. ISBN 978-1500734756, 2. ANSON, Steve. Applied Incident Response. New York, United States: Wiley, 2020. ISBN 978-1119560265, 3. ROBERTS, Scott. Intelligence-Driven Incident Response: Outwitting the Adversary. Sebastopol, California, United States: O'Reilly Media, 2017. ISBN 978-1491934944.

Course language:

Slovak or English

Notes:

Content prerequisites: basic knowledge in the field of information security, basics of working with the Linux operating system, basic knowledge of computer networks.

Course assessment Total number of assessed students: 15					
А	A B C D E FX				
66.67	26.67	0.0	6.67	0.0	0.0
Provides: doc. RNDr. JUDr. Pavol Sokol, PhD.					
Date of last modification: 26.09.2021					
Approved: prof. RNDr. Stanislav Krajči, PhD.					

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ PPU1a/15	VF/ Course name: Running practice				
Course type, scope a Course type: Practic Recommended cour 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 seme	ster/trimester of the cours	e: 2.			
Course level: II.					
Prerequisities:					
Conditions for course completion: Conditions for continuous evaluation: Active participation in the selected type of internship based on the instructions given by the internship supervisor. Conditions for the final evaluation: Evaluation of the student's approach to the internship and the work performed in the internship by the internship supervisor					
Learning outcomes: Experiences with the implementation of a selected type of internship.					
 Brief outline of the course: The exact content of the internship is specified by the internship supervisor. Students choose from a menu of topics presented by the course administrator. Typical topics of practice are: 1. assistance in the realization of exercises for yunger studnets, providing feedback to students on submitted homeworks 2. assistance in the installation and maintenance of computer and network infrastructure at UPJŠ 3. realizations of courses for working with specific software 4. creation of overviews from freely available sources 					
Recommended literature: The study or technical literature is determined individually depending on the focus of the internship by the internship supervisor.					
Course language: Slovak or English					
Notes:					
Course assessment Total number of asses	ssed students: 203				
	abs	n			
	97.54	2.46			

Provides: Ing. Miron Kuzma, PhD.

Date of last modification: 23.11.2021

University: P. I. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ PPU1b/15	D: ÚINF/ Course name: Running practice				
Course type, scope a Course type: Practic Recommended cour Per week: 3 Per stu Course method: pre	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 cr	edits: 3				
Recommended seme	ster/trimester of the cours	e: 3.			
Course level: II.					
Prerequisities:					
Conditions for course completion: Conditions for continuous evaluation: Active participation in the selected type of internship based on the instructions given by the internship supervisor. Conditions for the final evaluation: Evaluation of the student's approach to the internship and the work performed in the internship by the internship supervisor.					
Learning outcomes: Experiences with the implementation of a selected type of internship.					
 Brief outline of the course: The exact content of the internship is specified by the internship supervisor. Students choose from a menu of topics presented by the course administrator. Typical topics of practice are: 1. assistance in the realization of exercises for yunger studnets, providing feedback to students on submitted homeworks 2. assistance in the installation and maintenance of computer and network infrastructure at UPJŠ 3. realizations of courses for working with specific software 4. creation of overviews from freely available sources 					
Recommended literature: The study or technical literature is determined individually depending on the focus of the internship by the internship supervisor.					
Course language: Slovak or English					
Notes:					
Course assessment Total number of assessed students: 134					
	abs	n			
	99.25	0.75			

Provides: Ing. Miron Kuzma, PhD.

Date of last modification: 23.11.2021

University: P. J. Šafárik University in Košice				
Faculty: Faculty of Science				
Course ID: ÚINF/ VHSP/17Course name: SAP HANA environment computations				
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: II.				
Prerequisities:				
Conditions for course completion: Conditions for continuous evaluation: Active participation in problem solving tasks during classes. Conditions for final evaluation: Evaluation of student's approach and creativity on solutions of given tasks.				
Learning outcomes: Experience with basic SAP HANA ecosystem, experience with system's modules and SAP UI5 application development for SAP HANA.				
 Brief outline of the course: 1. Introduction to in memory computation 2. Comparison of in-memory and traditional SQL 3. HANA basics - administration, monitoring, data persistency, backup, update 4. HANA SQL language 5. HANA Eclipse Studio 6. Procedures, functions, scripts 7. Spatial data 8. HANA XS applications 9. advanced HANA XS applications 10. Streaming data analytics - notifications, patterns 11. Streaming data analytics - client - server application 12. Predictive analytics - MANA libraries and tools 				
Recommended literature: The SAP HANA reference guide is the main study and technical literature, it is an online source. There may occur some other referce guides as well, depending of the type of the particular task.				
Course language: Communication: Slovak, English Literature: English				
Notes:				

Course assessment			
Total number of assessed students: 14			
abs	n		
100.0	0.0		
Provides: Ing. Miron Kuzma, PhD.			
Date of last modification: 24.11.2021			
Approved: prof. RNDr. Stanislav Krajči, PhD.			

University: P. J. Šafárik University in Košice
Faculty: Faculty of Science
Course ID: ÚTVŠ/ Course name: Seaside Aerobic Exercise ÚTVŠ/CM/13 Course name: Seaside Aerobic Exercise
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.

 ŽECHOVSKÁ, I., MILEROVÁ, H., NOVOTNÁ, V. Aqua-fitness. Praha: Grada. 136 s. EVANS, M., HUDSON, J., TUCKER, P. 2001. Umění harmonie: meditace, jóga, tai-či, strečink. 192 s. JARKOVSKÁ, H., JARKOVSKÁ, M. 2005. Posilováni s vlastním tělem 417 krát jinak. Praha: Grada. 209 s. KOVAŘÍKOVÁ, K. 2017. Aerobik a fitness. Karolium, 130 s. 				
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: prof. RNDr. Stanislav Krajči, PhD.				

University: P. J. Šafá	rik University in Košice					
Faculty: Faculty of S	cience					
Course ID: ÚINF/ OPS1/15	Course ID: ÚINF/ OPS1/15Course name: Security of computer networks					
Course type, scope a Course type: Lectu 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	Number of FCTS credits: 5					

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

Course level: II.

Prerequisities:

Conditions for course completion:

Homeworks, active participation in laboratory exercises, midterm test. Final written exam, oral examination.

Learning outcomes:

Understand the importance and possibilities of information systems security, system and network security threats. To be able to detect security threats in the implementation of the Internet, to be able to configure and use security gateways and proxy servers. Understand the principle and risks of SSL and IPSec security protocols and know how to use them.

Brief outline of the course:

1. IS security principles, assets, threats, risks, attacks, the role of network and communication security, security objectives, functions and mechanisms.

2. Data transfer methods, technological and theoretical limits, transmission media, vulnerabilities and security threats.

3. Security threats of data transmission at the communication level of the communication model, data flow management in local networks, switching, STP, virtualization, MACsec, multiprotocol switching.

4. Security specifics of wireless transmission, WLAN networks, authentication mechanisms for WDS, data transmissions via mobile networks (GSM, LTE).

5. Remote access to the local network, EAP authentication, RADIUS protocol, trust management, certificate usage, certification process, certification authority tasks.

6. Security of IPv4 and IPv6 network protocols, possible attacks and protection, IPsec protocol, security associations and policies, exchange of cryptographic information.

7. Vulnerabilities of TCP and UDP transport protocols, TLS protocol, data security in TLS sessions, tunneling, VPN.

8. Security aspects of Internet application layer protocols, telnet, FTP, use of SSH protocol.

9. HTTP vulnerabilities, CSP, XSS content protection, code embedding, browser and server level protection, current implementation attacks.

10. Secure e-mail, MIME and S/MIME extensions, digitally signed and encrypted messages, security of mail servers, filtering of malicious content.

11. Internet, DNS and DNSSEC network security, DHCP, SNMPv3.

12. Connection filtering, proxy servers, hidden networking, NAT, NPT.

13. Security gate architecture, demilitarized zone, filtering rules, intrusion detection and prediction at the security gate level.

Recommended literature:

1. Paul C. van Oorschot: Computer Security and the Internet: Tools and Jewels, Springer, 2020

- 2. W. Stallings: Cryptography & Network Security, Pearson Education, 7th edition, 2017
- 3. L. Dostálek: Velký průvodce protokoly TCP/IP bezpečnost, Computer Press 2003

Course language:

Slovak or English

Notes:

Course assessment

Total number of assessed students: 23

А	В	С	D	Е	FX
30.43	17.39	13.04	13.04	21.74	4.35

Provides: RNDr. Rastislav Krivoš-Belluš, PhD., doc. RNDr. Jozef Jirásek, PhD.

Date of last modification: 08.01.2022

University: P. J. Šafá	rik University in Košice						
Faculty: Faculty of S	cience						
Course ID: ÚINF/ BPD1/15	Course name: Security of computer systems and data						
Course type, scope a Course type: Lectur Recommended cour Per week: 2 / 2 Per Course method: pre	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	edits: 5						
Recommended seme	ster/trimester of the course: 1., 3.						
Course level: I., II.							
Prerequisities:							
Conditions for cours Homeworks, active p Final practical test, or	e completion: articipation in laboratory exercises. ral examination.						
Familiarize with the availability of compu- computer system reso Gain the ability to cre- to evaluate system an knowledge necessary security audit of infor	concepts, methods, and means to ensure the confidentiality, integrity, and iter systems assets. To control in more detail the issues of access control to burces, operating system security, program security, database systems security. eate security models, use cryptographic methods to ensure security, know how d communication security. By completing the course the student will gain the in the design of secure computer and information systems, risk analysis and rmation systems.						
 Brief outline of the c Computer security User authentication vulnerabilities. Access control mod access monitoring an System security. management and mon Equipment for dig replication, archiving System startup (BI Management and r structure, metadata. Intel and ARM pr and paging support, p Malicious softward potentially malicious 	ourse: concepts, information security, security policies for its individual components. principles, password generation and management, multifactor authentication, dels, access matrices, attribute models, multilevel models, reference monitors, d audit. System installation, update management, service configuration, resource nitoring, user administration, remote access, virtualization, hardening. gital data storage, coding, durability, confidentiality, integrity, availability, disposal. OS, UEFI), disk data organization, file systems and their vulnerabilities. nonitoring of processes, operating system services, executable files and their cocessor architecture, assembler, memory access organization, segmentation process execution support. e, advanced persistence threat. Methods of system attacks, static analysis of software, countermeasures.						

11. Mechanisms of attacks at the level of application programs, exceeding the allocated resources, code insertion, social engineering.

12. Vulnerabilities of database systems, security of requirements, inference channels, problems of cloud implementations, archiving and secure data deletion.

13. Secure software development, defensive programming, input validation, formal verification, OWASP principles for web application development.

Recommended literature:

1. STALLINGS, W.: Computer Security: Principles and Practice, 4.ed., Pearson, 2017, ISBN 978-0134794105

2. PFLEEGER, CH.,P.: Security in Computing. 4th ed. Prentice-Hall International, Inc., 2006, ISBN: 0-13-2390779

3. GOLLMANN, D.: Computer Security. John Wiley & Sons, 2011, ISBN: 0-470-741155.

Course language:

Slovak or English

Notes:

Course assessment

Total number of assessed students: 44

А	В	С	D	Е	FX
22.73	22.73	18.18	18.18	18.18	0.0
Provides: doc. RNDr. Jozef Jirásek, PhD., RNDr. Rastislav Krivoš-Belluš, PhD.					

Date of last modification: 23.11.2021

University: P. J. Šafárik University in Košice						
Faculty: Faculty of Science						
Course ID: ÚM VKM/10	V/ Course n	ame: Selected to	pics in mathemat	ics		
Course type, sc Course type: I Recommended Per week: 2 / 2 Course metho	ope and the me Lecture / Practic d course-load (H 2 Per study per d: present	e nours): iod: 28 / 28				
Number of EC	FS credits: 5					
Recommended	semester/trime	ster of the cours	e: 1.			
Course level: II						
Prerequisities:						
Conditions for Awarded accord points).	course complet ling to tests dur	ion: ing semester (40	points), written	exam (20 points)	, oral exam (40	
Learning outco Students learn t linear and integ	mes: he fundamentals er optimalization	s of probability th n. The emphasis i	neory, random pros	ocesses, algebra plications.	of polynomials,	
Brief outline of Probability: cla geometrical pro Random proces Polynomials ov Formulation of for integer prog	Brief outline of the course: Probability: classical definition, conditional probability, characteristics of random variables, geometrical probability. Random processes, Markov chains. Polynomials over a field. Decomposition into irreducible factors. Roots of polynomials. Formulation of linear and integer programs. Graphic solution. Simplex method. Duality. Algorithm					
Recommended literature: G. Birkhoff, S. MacLane: Prehľad modernej algebry, Alfa Bratislava, 1979 T. Katriňák a kol.: Algebra a teoretická aritmetika 1, Alfa Bratislava, 1985 Plesník, Dupáčová, Vlach: Lineárne programovanie, Alfa, Bratislava 1990 Riečan a kol.:Pravdepodobnosť a matematická štatistika, Alfa, Bratislava, 1984 Skřivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2006						
Course language: Slovak						
Notes:						
Course assessment Total number of assessed students: 94						
А	В	С	D	Е	FX	
15.96	21.28	19.15	22.34	20.21	1.06	
Provides: doc. I	Provides: doc. RNDr. Miroslav Ploščica, CSc., doc. RNDr. Roman Soták, PhD.					

Date of last modification: 08.02.2022

University: P. J. Šafárik University in Košice								
Faculty: Faculty of Science								
Course ID: ÚINF/ SWB/15	Course name: Semantic web							
Course type, scope a Course type: Practa Recommended cou Per week: 3 Per sta Course method: pr	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 cr	edits: 4							
Recommended sem	ester/trimester of the course: 2., 4.							
Course level: II.								
Prerequisities:								
Conditions for cour Conditions for the fi presentation of select	se completion: nal evaluation: ted SW library or tool of semantic web in from of seminar for schoolmates							
Learning outcomess Understanding of se semantic web applic databases.	mantic web languages RDF, RDFS, OWL, ability to use them in practical ations, experience with ontology modelling and communication with ontology							
 Brief outline of the course: Semantic web - motivation, problems, visions. Structured web documents, XML, syntax, programming models DOM, SAX, StAX, namespaces in XML, XPath language, XQuery language. Examples of processing XML in Java. Semantic web modelling languages: RDF, RDFS, OWL Semantic web query language SPARQL, database RDF4J Description logic Creation of ontology in modelling tool Protege, reasoning Topic Maps language, modelling in tool Ontopia Jena linbrary DBPedia. Google knowledge graph and thair usage in program 								
Recommended liter [1]ANTONIOU, Gri Press, c2008. ISBN [2] BAADER, Franz Implementation and 978-0-521150118 [3] Project RDF4J. A [4] Project Protege. [5] Project Jena. Ava [6] SPARQL langug	 9. DBPedia, Google knowledge graph and thair usage in program Recommended literature: [1]ANTONIOU, Grigoris a Frank van HARMELEN. A semantic web primer. Cambridge: MIT Press, c2008. ISBN 978-0-262-01242-3. [2] BAADER, Franz. The Description Logic Handbook. Theory, Implementation and Applications. 2nd edition, Cambridge University Press, 2010. ISBN 978-0-521150118 [3] Project RDF4J. Available online: http://www.openrdf.org/sectarter [4] Project Protege. Available online: http://protege.stanford.edu/sectarter 							

query/>

Course language: Slovak or english						
Notes: Content prerequisities: basic programming in Java (PAZ1a), Foundations of first order logic (SLO1a), basics of databases (DBS1a)						
Course assessment Total number of assessed students: 50						
А	В	С	D	Е	FX	
72.0	8.0 10.0 4.0 2.0 4.0					
Provides: RNDr. Peter Gurský, PhD.						
Date of last modification: 17.11.2021						
Approved: prof	f. RNDr. Stanisla	v Krajči, PhD.				

University: P. J	. Safárik Univer	sity in Kosice				
Faculty: Facult	y of Science					
Course ID: ÚIN SPS1/15	VF/ Course n	ame: Seminar in a	network progra	mming		
Course type, sc Course type: I Recommended Per week: 3 Pe Course metho	ope and the me Practice d course-load (l er study period d: present	ethod: nours): : 42				
Number of EC	FS credits: 3					
Recommended	semester/trime	ster of the cours	e: 1., 3.			
Course level: I.	, II.					
Prerequisities:						
Conditions for	course complet	ion:				
Learning outco To render curre	mes: nt technologies	of programing in 1	network distrib	uted environment		
Brief outline of Basics of progr Procedure Calls ASP, JSP, Com Model, XML, Y Advanced level	the course: ramming the cli s. Server-side proponent Object N (SL, dynamic ex of programmin	ent-server applica ogramming, CGI, Model, Corba, dat atensions of HTM g is expected.	ations, iterative PHP, basics of l abase connecti L.	and concurrent Perl and Python. S on's interfaces. D	servers, Remote Script languages, locument Object	
Recommended Internet sources	literature: and specification	ons.				
Course languag	ge:					
Notes:						
Course assessment Total number of assessed students: 96						
А	В	С	D	E	FX	
65.63	20.83	20.83 11.46 1.04 1.04 0.0				
Provides: RND	r. Rastislav Kriv	oš-Belluš, PhD.		•		
Date of last mo	dification: 08.0	1.2022				
Approved: prof	. RNDr. Stanisla	av Krajči, PhD.				

University: P. J.	Šafárik Univers	sity in Košice				
Faculty: Faculty	of Science					
Course ID: ÚIN SGV1/16	IF/ Course na	F/ Course name: Seminar on computer graphics and vision				
Course type, sco Course type: P Recommended Per week: 2 Pe Course method	ope and the met Practice I course-load (h er study period: d: present	thod: ours): 28				
Number of ECT	FS credits: 3					
Recommended	semester/trimes	ster of the cours	e: 2.			
Course level: II.						
Prerequisities:						
Conditions for o	course completi	on:				
Learning outco	mes:					
Brief outline of Seminar is conne presents actual t algorithms of co Knowledge from	the course: ecte to the lecture heoretical and ir omputer graphics n the lecture UG	e UGR Introducti nplementation pr s, geometric mod R and good prog	on to computer g oblems. Main go elling and realist rammers experie	raphics. In semir bal in interest is o tic drawing of sc ence are suppose	har form students priented to quick enes. d.	
Recommended	literature:					
Course languag	ge:					
Notes:						
Course assessm Total number of	Course assessment Total number of assessed students: 47					
A	В	С	D	Е	FX	
68.09	68.09 17.02 12.77 2.13 0.0 0.0					
Provides: RNDr	. Rastislav Krive	oš-Belluš, PhD.		•	•	
Date of last mod	dification: 08.01	.2022				
Approved: prof.	. RNDr. Stanisla	v Krajči, PhD.				

University: P. J. Šafá	rik University in Košice					
Faculty: Faculty of S	cience					
Course ID: ÚINF/ SDI1a/15	Course name: Seminar to	Course name: Seminar to diploma theses in informatics				
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 cours	e: 2.				
Course level: II.						
Prerequisities: UINF	C/PDSI1/15					
Conditions for cours Presentation of the art tasks, editing of the v	Se completion: alysis of the assignment and veb page, written elaboration	I the proposal of the solution of the diploma thesis n of the analysis and design of the solution.				
Learning outcomes: Monitoring and publi	ic presentation of work done	e so fare on thesis preparation				
Brief outline of the c The seminar serves f to be awarded the cre of the assignment an solution procedure, u written analysis and p	ourse: For control, public presentated tedits, it is necessary to succe the achieved results, inclu- update the presentation of the proposal for solving the assisted	ion and defense of partial results at DP. In order essfully complete the presentation of the analysis iding the proposal of specific steps of the further he diploma thesis on the network and prepare a gned problem in the range of 15-20 pages.				
Recommended litera According to the topi	nture: ic of diploma thesis.					
Course language: Slovak or English						
Notes:	Notes:					
Course assessment Total number of asse	ssed students: 195					
	abs	n				
	95.38	4.62				
Provides:						
Date of last modifica	tion: 08.01.2022					
Approved: prof. RNDr. Stanislav Krajči, PhD.						
·						

University: P. J. Šafárik University in Košice							
Faculty: Faculty of Science							
Course ID: ÚINF/ SDI1b/15	Course name: Seminar to diploma theses in informatics						
Course type, scope a Course type: Practic Recommended cour 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 cro	edits: 2						
Recommended seme	ster/trimester of the course	e: 3.					
Course level: II.							
Prerequisities: ÚINF	/SDI1a/15						
Conditions for cours Presentation of achier of results.	e completion: ved results on the diploma the diplomatic dipl	hesis, web page modification, written processing					
Learning outcomes: Monitoring and publi	c presentation of work done	so fare on thesis preparation					
Brief outline of the c Every thesis has a c recognition, the follor thirty pages) and at le area, possible research judged more strictly). help and user friendly For both parts there v	Brief outline of the course: Every thesis has a compulsory theoretical part and may also contain a software part. To gain recognition, the following is necessary: a detailed compilation of studied literature (a minimum of thirty pages) and at least twenty pages of text containing the candidate's own views of the problem area, possible research goals, own results are welcome (if the thesis is purely theoretical, this will be judged more strictly). For the SW part: a tested implementation (must conform to user requirements, help and user friendly user interface not necessary at this stage) and access to source texts.						
Recommended literature: According to the topic of diploma thesis							
Course language: Slovak or English							
Notes:							
Course assessment Total number of assessed students: 175							
	abs	n					
	99.43	0.57					
Provides:							
Date of last modification: 08.01.2022							
Approved: prof. RNDr. Stanislav Krajči, PhD.							

University, D. I. Šeféril, University in Kečice				
Example a ferral conversity in Rosice				
Faculty: Faculty of Science				
SDI1c/15 Course name: Seminar to d	Course name: Seminar to diploma theses in informatics			
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 courses	: 4.			
Course level: II.				
Prerequisities: ÚINF/SDI1b/15				
Conditions for course completion: Presentation of the achieved results of the diplom web page.	Conditions for course completion: Presentation of the achieved results of the diploma thesis with a discussion. Final editing of the web page.			
Learning outcomes: Monitoring and public presentation of work done s	so fare on thesis preparation			
Brief outline of the course: The seminar serves for control, public presentation and defense of DP results. In order to be awarded the credits, it is necessary to complete a public presentation of the work associated with the discussion, together with the final presentation of the presentation on the Internet.				
Recommended literature: According to the topic of diploma thesis.				
Course language: Slovak or English				
Notes:				
Course assessment Total number of assessed students: 159				
abs n				
100.0 0.0				
Provides:				
Date of last modification: 08.01.2022				
Approved: prof. RNDr. Stanislav Krajči, PhD.				

University: P. J. Šafá	University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science				
Course ID: KPPaPZ/SPVKE/07	Course name: Social-Psychological Training of Coping with Critical Life Situations			
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/trimes	ster of the course: 2.		
Course level: 11.				
Prerequisities:				
Conditions for cours	Conditions for course completion:			
Learning outcomes:				
Brief outline of the c	ourse:			
Recommended literature:				
Course language:				
Notes:	Notes:			
Course assessment Total number of assessed students: 126				
abs n z				
97.62	97.62 2.38 0.0			
Provides: Mgr. Ondrej Kalina, PhD.				
Date of last modification: 24.06.2022				
Approved: prof. RNI	Approved: prof. RNDr. Stanislav Krajči, PhD.			

University: P. J. Šafárik University in Košice				
Faculty: Faculty of Science				
Course ID: ÚINF/ PRJm1a/15	Course name: Software project			
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 4 Per study period: 56 Course method: present				
Number of ECTS c	redits: 4			
Recommended sem	ester/trimester of the course: 1.			
Course level: II.				
Prerequisities:				
Conditions for course completion: Activity in exercises, elaboration of home assignments. Presentation of the results achieved in solving a specific problem. Uploading a software work.				
Learn how to work and explicitly expres alternatives. Implem documentation and p in a development tea	on a larger software part at all stages of its life cycle. Be able to analyze ss user requirements, precisely specify the task, design a solution and evaluate ent and test an effective and correctly designed solution. Learn to keep detailed present the results of the work in writing and in public. Learn to work together am, share work effectively and exchange ideas.			
 Brief outline of the course: Introduction to the Software Project, team building. Presentation of projects and assignment of Projects to individual teams. Data storage, working with storage Command Line commands to work with the repository Creating versions Presentation of the current state of the projects Merging of individual branches Presentation of new technologies from the project Presentation of the final project. 				
Recommended literature: 1. https://www.udemy.com/course/ Git & GitHub - The Complete Git & GitHub 2. https://www.jenkins.io/doc/ 3. Study literature tied to the selected project (according to the client's recommendation)				
Slovak or English				

Notes:

Content prerequisities: advanced programming skills	Content pres	requisities:	advanced	programming	skills.
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Content prerequisities: advanced programming skills.					
Course assessment Total number of assessed students: 36					
A B C D E FX					
75.0 8.33 2.78 2.78 8.33 2.78					2.78
Provides: Mgr. Alexander Szabari, PhD., Mgr. Patrik Pekarčík, RNDr. Róbert Novotný, PhD.					
Date of last modification: 23.11.2021					
Approved: prof. RNDr. Stanislav Krajči, PhD.					

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ PRJm1b/15	Course name: Sofware project				
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 4 Per study period: 56 Course method: present					
Number of ECTS cr	edits: 4				
Recommended seme	ester/trimester of the course: 2.				
Course level: II.					
Prerequisities:					
Conditions for cour Presentation of the Preparation of mater	Conditions for course completion: Presentation of the results achieved in solving a specific problem. Uploading a software work. Preparation of materials for the promotion of the final work.				
Learn how to work and explicitly express alternatives. Implem- documentation and p in a development tea	on a larger software part at all stages of its life cycle. Be able to analyze is user requirements, precisely specify the task, design a solution and evaluate ent and test an effective and correctly designed solution. Learn to keep detailed present the results of the work in writing and in public. Learn to work together im, share work effectively and exchange ideas.				
 Brief outline of the course: 1. Introduction to the Software Project, team building. 2. Presentation of projects and assignment of Projects to individual teams. 3. CI / CD Pipeline 4. JUnit Tests 5. Selenium Tests 6. Presentation of the current state of the projects 7. Presentation of the current state of the projects 8. Stress tests 9. Presentation of new technologies from the project 10. Presentation of new technologies from the project 11. Presentation of the final project. 12. Presentation of the final project. 					
Recommended liter	ature:				
 nttps://www.udemy.com/course/ Git & GitHub - The Complete Git & GitHub https://www.jenkins.io/doc/ Study literature tied to the selected project (according to the client's recommendation) 					
Course language: Slovak or English					

Notes:

content prerequisities: advanced programming skills					
Course assessment Total number of assessed students: 17					
A B C D E FX					
82.35 5.88 5.88 0.0 0.0 5.88					
Provides: RNDr. Róbert Novotný, PhD., RNDr. Peter Gurský, PhD.					
Date of last modification: 23.11.2021					
Approved: prof. RNDr. Stanislav Krajči, PhD.					

University: P. J. Šafárik University in Košice						
Faculty: Faculty of Science						
Course ID: ÚINF/ SSDa/20	Course name: Specialized seminar to diploma thesis					
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 cours	e: 2.				
Course level: II.						
Prerequisities:						
Conditions for cours Presentation of scien Active participation i	e completion: tific papers and software so n discussions about possible	lutions in the selected field of computer science. e solutions to selected problems.				
Learning outcomes: Student train the ability to study and present the principles and use of new software solutions to colleagues or to study and present the results of scientific results published in journals and conference papers.						
 Brief outline of the course: Presentation of scientific papers from a selected field of informatics. Practical presentation of current software solutions (libraries, frameworks) that are not included in study programs. Discussions on possible solutions to selected problems in computer science. The schedule of presentations will be published after the first meeting on the subject's website or other agreed location 						
 Recommended literature: 1. Scientific books and papers related to the selected field of computer science. 2. Book and online resources describing principles and use of selected software solutions 						
Course language: Slovak or English						
Notes:						
Course assessment Total number of assessed students: 21						
abs n						
100.0 0.0						
Provides: doc. RNDr. JUDr. Pavol Sokol, PhD., RNDr. Juraj Šebej, PhD., doc. RNDr. Ľubomír Antoni, PhD., RNDr. Miroslav Opiela, PhD.						
Date of last modification: 17.11.2021						
University: P. J. Šafá	rik University in Košice					
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Faculty: Faculty of Science						
Course ID: ÚINF/ SSDb/20	Course name: Specialized seminar to diploma thesis					
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 cours	se: 3.				
Course level: II.						
Prerequisities:						
Conditions for cours Presentation of scien Active participation i	e completion: tific papers and software so n discussions about possibl	Plutions in the selected field of computer science. e solutions to selected problems.				
Learning outcomes: Student train the abi to colleagues or to s conference papers.	lity to study and present t study and present the resul	he principles and use of new software solutions ts of scientific results published in journals and				
Brief outline of the c Presentation of scient Practical presentation study programs. Discussions on possi The schedule of pres other agreed location	ourse: tific papers from a selected of current software solution ble solutions to selected pro- entations will be published	field of informatics. ns (libraries, frameworks) that are not included in blems in computer science. after the first meeting on the subject's website or				
Recommended litera 1. Scientific books an 2. Book and online re	nture: nd papers related to the sele esources describing principl	cted field of computer science. es and use of selected software solutions				
Course language: Slovak or English						
Notes:						
Course assessment Total number of asse	ssed students: 28					
	abs	n				
85.71 14.29						
Provides: doc. RNDr. JUDr. Pavol Sokol, PhD., RNDr. Juraj Šebej, PhD., RNDr. Miroslav Opiela, PhD., doc. RNDr. Ľubomír Antoni, PhD.						
Date of last modifica	tion: 17.11.2021					

University: P. J. Šafá	University: P. J. Šafárik University in Košice					
Faculty: Faculty of S	Faculty: Faculty of Science					
Course ID: ÚTVŠ/ TVa/11	Course name: Sports Activities I.					
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present						
Number of ECTS credits: 2						
Recommended seme	ster/trimester of the course: 1.					
Course level: I., I.II.,	II.					
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					
Course ID: ÚTVŠ/ Course name: Sports Activities II. ΓVb/11					
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: ce rse-load (hours): ady period: 28 esent				
Number of ECTS cr	edits: 2				
Recommended seme	ster/trimester of the course: 2.				
Course level: I., I.II.,	II.				
Prerequisities:					
Conditions for cours active participation in	se completion: n classes - min. 80%.				
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				
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. e 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 at culty or University or competitions with national or international participation.				
Recommended litera BENCE, M. et al. 20 [online] Dostupné na BUZKOVÁ, K. 2006 8024715252.	i ture: 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
Course ID: 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.,	II.
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. pact 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 are culty or University or competitions with national or international participation
Recommended litera BENCE, M. et al. 20 [online] Dostupné na	t ure: 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

	rik University in Košice
Faculty: Faculty of So	cience
C ourse ID: ÚTVŠ/ FVd/11	Course name: Sports Activities IV.
Course type, scope an Course type: Practic Recommended cour Per week: 2 Per stue Course method: pre	nd the method: ce rse-load (hours): dy period: 28 esent
Number of ECTS cre	edits: 2
Recommended semes	ster/trimester of the course: 4.
Course level: I., I.II.,	II.
Prerequisities:	
C onditions for cours 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. apact on physical fitness and performance. Specialization in sports activities strengthen their relationship towards the selected sport in which they also
Brief outline of the constraints Within the optional set University provides badminton, body form indoor football, S-M set In the first two semes and particularities of in physical condition, con- Last but not least, the means of a special pro-	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.

[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. Šafá	rik University in Košice					
Faculty: Faculty of S	Science					
Course ID: ÚINF/ SVK1/15	Course name: Student scientific conference					
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present						
Number of ECTS credits: 4						
Recommended semester/trimester of the course: 4.						
Course level: I., II.						
Prerequisities:	Prerequisities:					

Conditions for course completion:

It is required to be registered for the participation on the Student Scientific Conference (ŠVK) in accordance to the Statute of the Student Scientific Conference at PF UPJŠ and the specific conditions for participation in a given year, which are announced by the dean of the faculty. Within one year of the ŠVK, a student or a research team can register in one track only. It is also possible to apply with a written work that is an integral part of a bachelor's or master's thesis or a result of a student support program. The written work at ŠVK is the result of the student's own work or the work of the research team. It must not show elements of academic fraud and must meet the criteria of good research practice defined in the Rector's Decision no. 21/2021, which lays down the rules for assessing plagiarism at Pavol Jozef Šafárik University in Košice and its components. Fulfillment of the criteria is verified mainly in the process of supervision and in the process of work presentation. Failure to do so is reason for disciplinary action. The condition for the evaluation is a successful presentation and defense of the work in the relevant track headed by a commission appointed by the dean of the faculty. The commission decides on the eligibility of credits and states its decision in the memorandum of the ŠVK.

Learning outcomes:

The student demonstrates mastery of extended theory and professional terminology of the field of study, acquisition of knowledge, skills and competences, the ability to apply them creatively in solving selected field problems, ability to present the results using appropriate presentation methods and tools and ability to actively participate in a professional discussion.

Brief outline of the course:

- 1. Analysis of the state of the art in the field.
- 2. Design and implementation of a solution to the researched problem.
- 3. Evaluation of achieved results.
- 4. Preparation of work annotation.
- 5. Processing the written work.
- 6. Preparation of results presentation.
- 7. Presentation and defense of the obtained results.

Recommended literature:

The recommended literature is specified individually by the student or research team in agreement with the consultant or the supervisor.						
Course language: Slovak or english						
Notes:						
Course assessment Total number of assessed students: 24						
abs	n					
100.0 0.0						
Provides:						
Date of last modification: 25.01.2022						
Approved: prof. RNDr. Stanislav Krajči, PhD.						

X					
University: P. J. Safái	ik University in Košice				
Faculty: Faculty of Science					
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: se se-load (hours): dy period: 28 sent				
Number of ECTS cro	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 acqui - implement basic ski - determine the right s - prepare a suitable m	ates relevant knowledge and skills in the field, which content is defined in the ecommended literature. I: the 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.				
Brief outline of the constraints of the constraints of the constraint of the constraints of the constraint of the constraints. Setting up a crew 4. Practical skills traints 5. Canoe lifting and constraints of the canoe lifting the canoe in the canoe in the canoe in the canoe of the pry stroke (on b) The draw stroke in the canoe of the canoe	burse: purse: 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 Consigna				
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/UkyxQ21Y	YF8qh/name/Nahrane-7-5-2021-v-14-46-39#!			
ZGDjBGR2AQtkAzVkAzLkLJWuLwWxZ2ukI	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				

Faculty: Faculty of Science

Course ID: ÚINF/	Course name: Verification and testing of programs
VEP1/21	

Course type, scope and the method: Course type: Lecture / Practice

Recommended course-load (hours):

Per week: 1 / 2 Per study period: 14 / 28

Course method: present

Number of ECTS credits: 4

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Activity during course, work on tasks/assignments, final evaluation based on collected points

Learning outcomes:

Foundation of software testing principles at the basic level and the importance of its application in practice. The utilization of test automation to streamline the testing process across the software development lifecycle.

Brief outline of the course:

1. Fundamentals of software testing, testing throughout the software development lifecycle, test levels, test types, maintenance testing

- 2. Static testing techniques, test case design, test techniques, test implementation, test execution
- 3. Test management, test strategy, defect management, tool support for testing, code review

4. Test automation introduction, purpose of test automation, success factors, test automation strategy, preparing for test automation

- 5. Generic test automation architecture, test automation solution development, test automation framework
- 6. Transition from manual tests to automated tests, criteria for automation, test automation pyramid
- 7. Test automation of Graphical user interface (Web, Desktop, Mobile), various tools overview
- 8. Web services (REST) test automation, various tools overview

9. Testing and automation in Agile and DevOps, exploratory testing, behavior driven development, test driven development, acceptance test driven development, integration to CICD

10. Non-Functional testing introduction, performance and load testing, security testing, usability testing

Recommended literature:

 $1.\ ISTQB\ CTFL\ Sylabus,\ available\ online\ <https://www.istqb.org/certification-path-interval of the sylabus of the sylabus of the sylabus of the sylabus of the synaple of the synap$

root/foundation-level-2018.html>, https://castb.org/wp-content/uploads/2020/05/

ISTQB_CTFL_Syllabus_SK_2018_3.1-1.pdf>

2. ISTQB ATAE Sylabus, available online < https://www.istqb.org/certification-path-root/test-automation-engineer.html >

3. Myers, G.: The Art of Software Testing, (2011)

4. Lisa Crispin and Janet Gregory: Agile Testing: A Practical Guide for Testers and Agile Teams, 2008

5. Mark Fewster, Dorothy Graham: Software Test Automation: Effective use of test execution tools, 1999

6. Mark Fewster, Dorothy Graham: Experiences of Test Automation: Case Studies of Software Test Automation, 2012

7. Katarina Clokie: A Practical Guid to Testing in DevOps, available online https://leanpub.com/testingindevops

Course language:

Slovak or English

Notes:

Course	assessment
Course	assessment

Total number of assessed students: 28

Date of last modification: 31.01.2022								
Provides: Mgr. Maroš Dzuriš								
35.71	25.0	14.29	10.71	14.29	0.0			
А	В	С	D	Е	FX			