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COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ AOS1/15	Course name: Administration of OS
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.	
Prerequisites:	
Conditions for course completion:	
Learning outcomes: To be able to install Linux based system, divide disks, to know how to install, configure and manage several network deamons.	
Brief outline of the course: 1. Introduction to network services 2. SSH 3. Routing and NAT 4. Introduction to Firewall 5. Advanced firewall settings 6. DHCP server 7. Web server (apache, php, mysql) 8. Monitoring Server (SNMP, MRTG) 9. Samba Server 10. Mail server (smtp, imap, postfix) 11. Proxy server 12. Windows server 13. Windows Server II. 14. Introduction to Virtualization (Hyper-V OpenVZ)	
Recommended literature: 1. Linux Documentation Project, 4 updated edition. Brno: Computer Press (2008). 2. Stanek, W.: Windows Server 2012 Inside Out. Microsoft Press (2013) 3. Shah, S. Soyinka, W. Administration Linux. Grade (2007) 4. Nemeth, E., et al.: Linux. Brno: Computer Press (2008)	
Course language: Slovak or english	
Notes:	

Course assessment					
Total number of assessed students: 28					
A	B	C	D	E	FX
57.14	21.43	14.29	0.0	7.14	0.0
Provides: RNDr. JUDr. Pavol Sokol, PhD., RNDr. Tomáš Bajtoš					
Date of last modification: 10.02.2021					
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ KKV1/15	Course name: Classical and quantum computations
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 1 Per study period: 42 / 14 Course method: present	
Number of ECTS credits: 6	
Recommended semester/trimester of the course: 1., 3.	
Course level: II.	
Prerequisites:	
Conditions for course completion: Written work Written and oral examination	
Learning outcomes: To provide information on quantum computer and quantum computations. To compare classical and quantum models and methods.	
Brief outline of the course: The basics of classical theory of computation: Turing machines, Boolean circuits, parallel algorithms, probabilistic computation, NP-complete problems, and the idea of complexity of an algorithm. Introduction of general quantum formalism (pure states, density matrices, and superoperators), universal gate sets and approximation theorems. Grover's algorithm, Shor's factoring algorithm, and the Abelian hidden subgroup problem. Parallel quantum computation, a quantum analogue of NP-completeness, and quantum error-correcting codes.	
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:	
Notes:	

Course assessment					
Total number of assessed students: 136					
A	B	C	D	E	FX
25.0	35.29	13.97	12.5	6.62	6.62
Provides: prof. RNDr. Gabriel Semanišin, PhD., RNDr. Zuzana Bednárová, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ VKN/15	Course name: Computational and cognitive neuroscience
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: II.	
Prerequisites:	
Conditions for course completion: project, exam	
Learning outcomes: Advanced topics in study of the central nervous system and cognitive processes in human, with focus on computational concepts important in the study of cognitive and neural sciences. Prerequisite: Intro to Neuroscence	
Brief outline of the course: Selected topics in cognitive science (following up on Intro to Neuroscience). Overview of the methods of theoretical study in cognitive and neural science, including connectionistic, statistical and system-theory principles in modeling of cognitive processes and neural circuits. Selected models of the human visual and auditory systems, learning, thinking, attention, development and plasticity.	
Recommended literature: HERTZ, J., KROGH, A. and PALMER R. G.: Introduction to the theory of neural computation. Addison-Wesley 1991 KANDEL, E. R., SCHWARTZ, J. H. and JESSELL, T.M.: Principles of Neural Science. McGraw-Hill, 2000 DAYAN, P. and ABBOTT, L. F.: Theoretical Neuroscience – Computational and Mathematical Modeling of Neural Systems. MIT Press, 2001	
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: 8					
A	B	C	D	E	FX
50.0	12.5	25.0	12.5	0.0	0.0
Provides: doc. Ing. Norbert Kopčo, PhD.					
Date of last modification: 10.02.2021					
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ VYZ1/15	Course name: Computational complexity
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: 4	
Recommended semester/trimester of the course: 3.	
Course level: II.	
Prerequisites:	
Conditions for course completion: Oral examination.	
Learning outcomes: To give the students the theoretical background in computational complexity and theory of NP-completeness.	
Brief outline of the course: Deterministic and nondeterministic algorithms with polynomial time, NP-completeness. Deterministic simulation of a nondeterministic Turing machine. Satisfiability of Boolean formulae. Another NP-complete problems: satisfiability of a formula in a conjunctive normal form, 3-satisfiability, 3-colorability of a graph, 3-colorability of a planar graph, knapsack problem, balancing, ... Space bounded computations, classes L, NL, PSPACE. Deterministic simulation - Savitch theorem. Closure under complement. Complete problems for classes NL, P, and PSPACE.	
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. Press, 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 prerequisites: 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: 334					
A	B	C	D	E	FX
57.78	15.57	11.68	7.19	7.49	0.3
Provides: prof. RNDr. Viliam Geffert, DrSc.					
Date of last modification: 22.02.2021					
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/MSSUI/15		Course name: Computer science and didactics of informatics			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present					
Number of ECTS credits: 1					
Recommended semester/trimester of the course:					
Course level: II.					
Prerequisites: ÚINF/DIN1b/15, ÚINF/TIK1/15, (ÚINF/UGR1/15 and lebo ÚINF/KKV1/15 and lebo ÚINF/KKV1/21 and lebo ÚINF/UNS1/15 and lebo ÚINF/FO1/15)					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 13					
A	B	C	D	E	FX
38.46	23.08	23.08	7.69	7.69	0.0
Provides:					
Date of last modification: 24.04.2017					
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ MPPc/15	Course name: Continuous practice teaching I
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: Per study period: 4t Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 3.	
Course level: II.	
Prerequisites: ÚINF/MPPb/15	
Conditions for course completion: A certified statement of classroom visits and own taught lessons as proof of a practice within the range prescribed 6 hours classroom visits and 18 taught computer science lessons. Observation records and lesson preparations.	
Learning outcomes: The student under supervision of an experienced teacher trainer teaching practical skills for computer science teaching. Student is familiar with the life of the school, extra-curricular and other activities.	
Brief outline of the course: Observations of teacher trainer lessons, consultations of lesson preparations of students, teaching aids, teaching own lessons, methodological and scientific analysis of lessons, active participation in extracurricular and other activities of training school.	
Recommended literature: Current computer science textbooks for primary and secondary schools in Slovakia.	
Course language: Slovak	
Notes:	
Course assessment Total number of assessed students: 12	
abs	n
100.0	0.0
Provides: doc. RNDr. Ľubomír Šnajder, PhD.	
Date of last modification: 03.05.2015	
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ MPPd/15	Course name: Continuous practice teaching II
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: Per study period: 6t Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 4.	
Course level: II.	
Prerequisites: ÚINF/MPPc/15	
Conditions for course completion: A certified statement of classroom visits and own taught lessons as proof of a practice within the range prescribed 8 hours classroom visits and 30 taught computer science lessons. Observation records and lesson preparations.	
Learning outcomes: The student under supervision of an experienced teacher trainer teaching practical skills for computer science teaching. Student is familiar with the life of the school, extra-curricular and other activities.	
Brief outline of the course: Observations of teacher trainer lessons, consultations of lesson preparations of students, teaching aids, teaching own lessons, methodological and scientific analysis of lessons, active participation in extracurricular and other activities of training school.	
Recommended literature: Current computer science textbooks for primary and secondary schools in Slovakia.	
Course language: Slovak	
Notes:	
Course assessment Total number of assessed students: 9	
abs	n
100.0	0.0
Provides: doc. RNDr. Ľubomír Šnajder, PhD.	
Date of last modification: 03.05.2015	
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ ODPU/15		Course name: Defence of diploma thesis			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present					
Number of ECTS credits: 15					
Recommended semester/trimester of the course:					
Course level: II.					
Prerequisites: ÚINF/DSU1b/15					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 10					
A	B	C	D	E	FX
50.0	0.0	50.0	0.0	0.0	0.0
Provides:					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ TSM1a/15		Course name: Development and processing of multimedia			
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course: 1., 3.					
Course level: II.					
Prerequisites:					
Conditions for course completion: Assessment of preliminary assignments - static images, animations, sounds, videos. Assessment of the final multimedia project for the selected topic of computer science.					
Learning outcomes: To acquire basic principles about multimedia and procedures for the creation and processing of multimedia (still images, animation, audio, video).					
Brief outline of the course: Principles of creation and processing of computer graphics, audio and video by the help of selected multimedia editors (LogoMotion, Pixlr, Go Animate, Diagramly, InkScape, Audacity, Anvil Studio, Magix Music Maker, CamStudio, Windows Movie Maker, FormatFactory).					
Recommended literature: 1. LACHS, V. Making Multimedia in the Classroom. London : RoutledgeFalmer, 2000. ISBN 0415216842. 2. GÖBEL, S. et al. Technologies for Interactive Digital Storytelling and Entertainment (LNCS 4326). Darmstadt : Springer, 2006. ISBN 3540499342. 3. ADÁMEK, R. et al. Moderná didaktická technika v práci učiteľa. Elfa, s.r.o., Košice. 2010. ISBN 978-80-8086-135-3. 4. CHALUPA, R. Fotografie, hudba a video ve Windows XP. 2005. ISBN 8072269313.					
Course language:					
Notes:					
Course assessment Total number of assessed students: 14					
A	B	C	D	E	FX
42.86	21.43	21.43	7.14	7.14	0.0
Provides: doc. RNDr. Ľubomír Šnajder, PhD.					
Date of last modification: 03.05.2015					

Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ TSM1b/15		Course name: Development and processing of multimedia			
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course: 2., 4.					
Course level: II.					
Prerequisites:					
Conditions for course completion: Evaluation of particular assignments. 100% / 0% Project containing programmed multimedia.					
Learning outcomes: Program design and multimedia applications. Understand the basic principles and procedures for multimedia programming.					
Brief outline of the course: Principles of Programming bitmap graphics, bitmap animation, vector graphics, vector animation, audio and video.					
Recommended literature: DUNN, J. R. Digitální video. 2003. ISBN 8025100383. Audacity: Programování v Conquista. [online] Dostupné na internete: < http://audacity.sourceforge.net/help/nyquist2 >. ARMSTRONG, J., DEHAAN, J. Macromedia Flash 8 - výukový průvodce. 2006. ISBN 8025103358.					
Course language:					
Notes:					
Course assessment Total number of assessed students: 6					
A	B	C	D	E	FX
16.67	66.67	16.67	0.0	0.0	0.0
Provides: PaedDr. Ján Guniš, PhD.					
Date of last modification: 09.02.2021					
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ DIN1a/15	Course name: Didactics of informatics
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 3 Per study period: 42 Course method: present	
Number of ECTS credits: 3	
Recommended semester/trimester of the course: 2.	
Course level: II.	
Prerequisites:	
Conditions for course completion: Computer science teaching plan at secondary grammar school. Conceptual map and cognitive objectives of chosen computer science topic. Collection of tasks with increasing complexity for chosen topic. Teaching preparation for 5E inquiry-based lesson for selected topic.	
Learning outcomes: 1. To acquire an overview of the objectives, content, modern methods of teaching computer science. 2. To create conceptual map, cognitive objectives and tasks collection with increasing complexity for chosen topic. 3. To create a inquiry-oriented methodology of teaching a chosen topic. 4. To solve selected algorithmic problems using various problem solving strategies.	
Brief outline of the course: The objectives and content of computer science education. Teaching task, its forms and parameters. Creation of tasks collection with increasing complexity. Activating methods of teaching computer science. Inquiry-based computer science education. Methodology of teaching selected topics of computer science. Solving algorithmic problems exploiting various strategies.	
Recommended literature: 1. HAZZAN, Orit - LAPIDOT, Tami - RAGONIS, Noa (2011). Guide to teaching computer science : an activity-based approach. London ; New York : Springer, ©2011. ISBN 978-0-85729-443-2. 2. BELL, Tim - MORGAN, Jack (2014). Computer Science Field Guide. University of Canterbury, New Zealand. http://www.cosc.canterbury.ac.nz/csfieldguide/index.html 3. BELL, Tim - WITTEN, Ian H. - FELLOWS, Mike (2005). Computer Science Unplugged: An enrichment and extension programme for primary-aged children. Computer Science Unplugged. 2005. http://ir.canterbury.ac.nz/bitstream/10092/247/1/12584508_Main.pdf 4. KALAŠ, Ivan et al. (2001). Informatika pre stredné školy, Bratislava : SPN, 2001. ISBN 80-10-00157-0. 5. GUNIŠ, Ján - SUDOLSKÁ, Miloslava - ŠNAJDER, Ľubomír (2009). Ďalšie vzdelávanie učiteľov základných škôl a stredných škôl v predmete informatika - Aktivizujúce metódy vo vyučbe školskej informatiky. 2009. ISBN 978-80-89225-96-5.	

Course language:					
Notes:					
Course assessment					
Total number of assessed students: 68					
A	B	C	D	E	FX
27.94	16.18	22.06	20.59	11.76	1.47
Provides: doc. RNDr. Ľubomír Šnajder, PhD., PaedDr. Ján Guniš, PhD.					
Date of last modification: 01.04.2020					
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ DIN1b/15	Course name: Didactics of informatics
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course: 3.	
Course level: II.	
Prerequisites:	
Conditions for course completion: The preliminary assessment shall be based on the results of independent work of student on computers for a number of sub-assignments (course and evaluation of own inquiry activity, didactical quiz, interactive modelling applet, inquiry-based worksheet with tasks and questions). In final exam students will demonstrate an overview of the theoretical knowledge in the field of computer science education in written form and they will present and defend their own educational project for the chosen topic of the computer science (containing objectives, system of tasks with increasing complexity, tasks solutions and methodological commentaries and didactical quiz).	
Learning outcomes: 1. For the chosen topic of school informatics create didactic quiz, inquiry-based worksheet with tasks and questions, implement and evaluate own inquiry activity. 2. To create an interactive model for the chosen natural phenomenon or computer science concept. 3. To create a lesson preparation using modern teaching methods and aids, to implement it in practice and evaluate.	
Brief outline of the course: Teaching paradigms. Inquiry based computer science education. Process of creating concepts in computer science. Assessment of learning objectives of pupils, didactical quizzes. Programming teaching (paradigms, environments, data types, commands, variables). Specifics of computer arithmetics. Mathematical modelling and simulation. Methodology of teaching selected topics of computer science (multimedia, internet). Computer science competitions.	
Recommended literature: 1. HAZZAN, Orit - LAPIDOT, Tami - RAGONIS, Noa (2011). Guide to teaching computer science : an activity-based approach. London ; New York : Springer, ©2011. ISBN 978-0-85729-443-2. 2. BELL, Tim - MORGAN, Jack (2014) Computer Science Field Guide. University of Canterbury, New Zealand. http://www.cosc.canterbury.ac.nz/csfieldguide/index.html 3. SALANCI, Ľubomír - TOMCSÁNYIOVÁ, Monika - BLAHO, Andrej (2010). Ďalšie vzdelávanie učiteľov základných škôl a stredných škôl v predmete informatika : Didaktika programovania 2. Bratislava : Štátny pedagogický ústav, 2010. 36 s. ISBN 978-80-8118-053-8.	

4. GUNIŠ, Ján - ŠNAJDER, Ľubomír (2009). Ďalšie vzdelávanie učiteľov základných škôl a stredných škôl v predmete informatika : Didaktika predmetu Informatika 2. Bratislava : Štátny pedagogický ústav, 2009. 45 s. ISBN 978-80-8118-021-7.

Course language:

Notes:

Course assessment

Total number of assessed students: 151

A	B	C	D	E	FX
17.88	33.77	23.84	15.89	7.95	0.66

Provides: doc. RNDr. Ľubomír Šnajder, PhD., PaedDr. Ján Guniš, PhD.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ FO1/15		Course name: Formal languages and automata			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 1 Per study period: 28 / 14 Course method: present					
Number of ECTS credits: 5					
Recommended semester/trimester of the course: 1., 3.					
Course level: II.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes: To provide theoretical background for studying computer science in general, by giving the necessary knowledge in theory of automata.					
Brief outline of the course: Greibach normal structure of contextfree gramars. Deterministic pushdown automata. Context-sensitive grammars and linearly-bounded Turing machines. Deterministic linearly-bounded Turing machines. Space bounded machines. Phrase-structure grammars and Turing machines. Post correspondence problem. Undecidable problems in the theory of formal languages.					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 11					
A	B	C	D	E	FX
36.36	36.36	18.18	9.09	0.0	0.0
Provides: prof. RNDr. Viliam Geffert, DrSc., Mgr. Alexander Szabari, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ TIK1/15		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 semester/trimester of the course: 1.					
Course level: II.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 88					
A	B	C	D	E	FX
64.77	11.36	12.5	3.41	0.0	7.95
Provides: prof. RNDr. Stanislav Krajčí, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ VIV1/15	Course name: Internet in education
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 1 / 2 Per study period: 14 / 28 Course method: present	
Number of ECTS credits: 4	
Recommended semester/trimester of the course: 2.	
Course level: II.	
Prerequisites:	
Conditions for course completion: Assessment of preliminary assignments - design of a teleproject, design of an e-learning course lesson, design and implementation of a video-conference activity. In final exam students will demonstrate an overview of using the Internet in education in written form and they will present and defend their final work focused on using the Internet in education (design and implementation of an e-learning course, teleproject, webquest, on-line competition, lesson exploiting several Internet sources and tools).	
Learning outcomes: 1. To acquire an overview of the possibilities of using the Internet in education. 2. To enhance skills for searching, acquiring, exchanging and presenting information via the Internet. 3. To design, develop and verify an Internet activity (e-learning course, teleproject, WebQuest, online competition, video lecture).	
Brief outline of the course: Overview of using the Internet in education. Educational Web sites and search engines. Design, implementation and evaluation of e-learning courses. Educational teleprojects, online competitions, teleexperiments. Communicating via the Internet - forums, blogs, videoconferences, social networking. Social, medical, ethical and legal aspects of using the Internet.	
Recommended literature: 1. CONRAD, Rita-Marie - DONALDSON, J. Ana (2011). Engaging the Online Learner: Activities and Resources for Creative Instruction. Jossey-Bass; Updated Edition edition 2011. ISBN 978-1118018194. 2. FREEDMAN, Terry (2010) The Amazing Web 2.0 Projects Book. http://www.terry-freedman.org.uk/web2_2010/Amazing%20Web%202%20Projects%20%20online%20version.pdf 3. MANN, B. L. Selected Styles in Web-based Educational Research. Information Science Pub, 2005. ISBN 15-9140-732-X. 4. BARANOVIČ, R. et al. Internet pre stredné školy - Učebnica Internetu. Praha : Computer Press, 2003. 275 s. ISBN 80-251-0088-X.	

Course language:					
Notes:					
Course assessment					
Total number of assessed students: 151					
A	B	C	D	E	FX
15.23	33.77	21.19	14.57	11.92	3.31
Provides: doc. RNDr. Ľubomír Šnajder, PhD., PaedDr. Ján Guniš, PhD.					
Date of last modification: 01.04.2020					
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ UGR1/15		Course name: Introduction to computer graphics			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present					
Number of ECTS credits: 5					
Recommended semester/trimester of the course: 1., 3.					
Course level: I., II.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes: To provide the students with knowledge of graphics algorithms and basic principles of computer graphics.					
Brief outline of the course: Graphics hardware, input and output devices. Color models, palettes. Raster graphics algorithms for drawing 2D primitives. Filling and clipping. Curve modeling, interpolations and approximations, spline forms, Bézier curves, B-splines, surfaces. Homogenous coordinates, affine transformations, perspective and parallel projections. Visible-surface determination, illumination and shading. Rendering techniques, photorealism, textures, ray tracing, radiosity. Object representations, computer animation, virtual reality.					
Recommended literature: FOLEY, J. D., van DAM, A., FEINER, S., HUGHES, J.: Computer Graphics: Principles and Practice, Addison-Wesley, 1991 MORTENSON, M.E.: Geometric modeling, 2.ed., Willey, 1997					
Course language:					
Notes:					
Course assessment Total number of assessed students: 297					
A	B	C	D	E	FX
13.8	10.44	13.8	23.57	29.97	8.42
Provides: doc. RNDr. Jozef Jirásek, PhD., RNDr. Rastislav Krivoš-Belluš, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ UNS1/15		Course name: Introduction to neural networks			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present					
Number of ECTS credits: 5					
Recommended semester/trimester of the course: 1., 3.					
Course level: I., II.					
Prerequisites:					
Conditions for course completion: Evaluation of projects created for neural network applications. Written and oral exam.					
Learning outcomes: To understand and to know applications of basic paradigms of neural networks. To learn working with software for neural network models.					
Brief outline of the course: Basic models of computational units - neurons (linear threshold gates, polynomial threshold gates, perceptrons), their computational capability, algorithms of adaptations. Feed-forward neural networks, back propagation algorithm. Hopfield neural networks. ART neural networks. Using neural networks to solving of problems. Genetic and evolution algorithms.					
Recommended literature: J. Hertz, A.Krogh, R.G. Palmer: Introduction to the theory of neural computation, Addison Wesley, 1991 HASSOUN, M. H.: Fundamentals of artificial neural networks, The MIT Press, 1995. Mitchell, M. (1998). An introduction to genetic algorithms. MIT press.					
Course language: Slovak or English					
Notes: Content prerequisites: Basics of programming in Python, or another alternative programming language suitable for data analysis					
Course assessment Total number of assessed students: 439					
A	B	C	D	E	FX
14.12	17.08	22.55	19.13	22.78	4.33
Provides: RNDr. Ľubomír Antoni, PhD.					

Date of last modification: 10.02.2021

Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Olga Orosová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ LOP1/15		Course name: Logic programming			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present					
Number of ECTS credits: 5					
Recommended semester/trimester of the course: 2., 4.					
Course level: I., II.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes: To learn bases of declarative programming (as complementary method to procedural programming) and basic methods of implementations of logic programming languages.					
Brief outline of the course: Facts and rules in Prolog. Unification of terms (Robinson's unification algorithm). Recursion and backtrack in Prolog. Computational step and computational tree. Classification of terms. Lists. Functors and operators in composed terms. Predicates for input and output. Dynamic database. Cycles (repeat-fail, for). Predicates related to backtrack. Cut. Predicates evaluating of arithmetic expressions.					
Recommended literature: Bratko, I.: Prolog – programming for artificial intelligence, third edition. Addison-Wesley, 2001 Nilsson U., Maluszynski J.: Logic, Programming and Prolog, John Wiley & Sons Ltd. 1995 Nienhuys-Cheng Sh.H., Wolf R.: Foundations of Inductive Logic Programming, Springer-Verlag, 1997					
Course language:					
Notes:					
Course assessment Total number of assessed students: 266					
A	B	C	D	E	FX
22.93	11.28	13.16	24.44	26.32	1.88
Provides: RNDr. Ondrej Krídlo, PhD., prof. RNDr. Stanislav Krajčí, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ PDSII/15	Course name: Pro-seminar to diploma thesis 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 course: 1.	
Course level: II.	
Prerequisites:	
Conditions for course completion:	
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: MEŠKO, D., KATUŠČÁK, D. Akademická príručka. 1. vyd. Vydavateľstvo Osveta : Martin, 2004. 316 s. ISBN 80-8063-150-6 ISO 690: 1987 Documentation - Bibliographic references. Content, form and structure. ISO 2145: 1978 Documentation - Numbering of divisions and subdivisions in written documents. Eco, U.: Jak napsat diplomovou práci, z taliančiny Come si fa una tesi di laures, Milano, 1977, Olomouc, Votobiax. Odborná a vedecká literatúra týkajúca sa diplomovej práce podľa odporúčania vedúceho diplomovej práce.	
Course language:	
Notes:	
Course assessment Total number of assessed students: 72	
abs	n
97.22	2.78
Provides: doc. RNDr. Ľubomír Šnajder, PhD.	
Date of last modification: 03.05.2015	
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ JAC1/15	Course name: Programming language C
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.	
Prerequisites:	
Conditions for course completion: Practics attendance and activity. Home assignment Final project.	
Learning outcomes: Become skilled in language C and get knowledge of the theoretical concepts that are used in the development in low-level software.	
Brief outline of the course: 1. Installing and setting up the development environment. Simple program in C, compiling and running. 2. Loops, conditions. Introduction to arrays. Numeric functions from numeric library. Compiling with `gcc` and setting up the warnings and hints. 3. Functions. Statically allocated arrays. Array gotchas in C. Makefiles for complex projects. 4. Basic I/O functions. Functions with array parameters and specifics. 5. Dynamic memory allocation as a mechanism for dynamic arrays. Strings as a special case of arrays. Strings and file I/O. 6. String manipulation principles and functions from standard library. 7. Working with binary files. 8. Custom data types. Structs. 9. Dynamic data structures. Linked lists. Stacks and operations with these structs. 10. Additional operations with dynamic data structures. Parameter passing with values and name. 11. Useful tricks and hints: passing parameters from operating system, exit codes. Multidimensional arrays. 12. Function pointers. Generic pointers. Unions.	
Recommended literature: 1. A. D. Marshall: Programming in C: UNIX System Calls and Subroutines using C. [online] < http://www.cs.cf.ac.uk/Dave/C/CE.html > 2. J. Maasen: C for Java Programmers. [online] < http://www.cs.vu.nl/~jason/college/dictaat.pdf > 3. Bruce Eckel: Thinking in C. [online] < http://mindview.net/CDs/ThinkingInC >	
Course language:	

Notes:					
Course assessment					
Total number of assessed students: 218					
A	B	C	D	E	FX
34.4	19.27	17.43	14.22	10.55	4.13
Provides: RNDr. PhDr. Peter Písarčík, RNDr. Patrik Pekarčík					
Date of last modification: 07.09.2015					
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ PPU1a/15	Course name: Running practice
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 2.	
Course level: II.	
Prerequisites:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 181	
abs	n
97.24	2.76
Provides:	
Date of last modification: 03.05.2015	
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ MPPb/15	Course name: Scheduled practice teaching
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: Per study period: 36s Course method: present	
Number of ECTS credits: 1	
Recommended semester/trimester of the course: 2.	
Course level: II.	
Prerequisites: KPE/MPPa/15,KPE/PDU/15,(KPPaPZ/PaSPP/09 and leboKPPaPZ/PPgU/15)	
Conditions for course completion: During the practice students observe 11 computer science lessons and leads one own computer science hour under the guidance of a teacher trainer. Confirmation of classroom visits. Written assessment from the teacher trainer.	
Learning outcomes: Students acquire knowledge by observing the practical application of teaching skills for teaching the subject of computer science and getting to know the organization of school work. Introduction into practical implementation of computer science lesson.	
Brief outline of the course: Students observe the process of teaching computer science at primary and secondary school and analysed it with teacher trainer. Practice takes place continuously during the course of the semester. Practice is scheduled once a week at the time of first to third lesson in schools. The first two hours observation/teaching, the third hour analysing process under the guidance of a teacher trainer.	
Recommended literature: Current computer science textbooks for primary and secondary schools in Slovakia.	
Course language: Slovak	
Notes:	
Course assessment Total number of assessed students: 65	
abs	n
100.0	0.0
Provides: doc. RNDr. Ľubomír Šnajder, PhD.	
Date of last modification: 03.05.2015	

Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ DSU1a/15	Course name: Seminar to diploma theses in informatics XI
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 2.	
Course level: II.	
Prerequisites: ÚINF/PDSI1/15	
Conditions for course completion: Elaboration and presentation of papers on selected areas of computer science education. Present the interim results of the diploma thesis.	
Learning outcomes: Get an overview of the results of educational research in the field of computer science education. To learn currently work on the diploma thesis, to present partial results of the pedagogical research work on it.	
Brief outline of the course: Educational research in the field of computer science education. Study of educational literature (conference proceedings, journals, studies) focusing on selected issues of computer science education. Presentations of interim results of students' diploma theses.	
Recommended literature: 1. KATUŠČÁK, D. Ako písať vysokoškolské a kvalifikačné práce: ako písať seminárne práce a ročníkové práce, práce študentskej vedeckej a odbornej činnosti, diplomové, záverečné a atestačné práce a dizertácie. 3. vyd. Nitra : Enigma, 2004. 162 s. ISBN 80-89132-10-3. 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. Olomouc : Votobia, 1997. 278 s. ISBN 80-7098-173-7. 5. Digital libraries (ACM Digital Library, IEEExplore, DOAJ) 6. Scientific literature relevant to diploma thesis according of recommendation of supervisor.	
Course language: Slovak	
Notes:	

Course assessment	
Total number of assessed students: 6	
abs	n
100.0	0.0
Provides: doc. RNDr. Ľubomír Šnajder, PhD.	
Date of last modification: 03.05.2015	
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ DSU1b/15	Course name: Seminar to diploma theses in informatics XI
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 3.	
Course level: II.	
Prerequisites: ÚINF/DSU1a/15	
Conditions for course completion:	
Learning outcomes: Get an experience with design, realization and evaluation of own educational research in the field of computer science education. To learn currently work on the diploma thesis, to present partial results of the pedagogical research work on it.	
Brief outline of the course: Educational research in the field of computer science education. Study of educational literature (conference proceedings, journals, studies) focusing on selected issues of computer science education. Design, realization and evaluation of own educational research in the field of computer science education. Presentations of interim results of students' diploma theses.	
Recommended literature: 1. HENDL, Jan (2005). Kvalitativní výzkum - základní metody a aplikace. Praha : Portál, 2005. ISBN 80-7367-040-2. 2. ŠVAŘÍČEK, Roman - ŠEĎOVÁ, Klára et al. (2007). Kvalitativní výzkum v pedagogických vědách. Praha : Portál, 2007. ISBN 978-80-7367-313-0. 3. GAVORA, Peter et al. (2010). Elektronická učebnica pedagogického výskumu. [online]. Bratislava : Univerzita Komenského, 2010. Dostupné na: http://www.e-metodologia.fedu.uniba.sk/ ISBN 978-80-223-2951-4. 4. BELL, Tim - MORGAN, Jack (2014). Computer Science Field Guide. University of Canterbury, New Zealand. Dostupné na: http://www.cosc.canterbury.ac.nz/csfieldguide/index.html 5. Digital libraries (ACM Digital Library, IEEEExplore, DOAJ) 6. Scientific literature relevant to diploma thesis according of recommendation of supervisor.	
Course language: Slovak	
Notes:	

Course assessment	
Total number of assessed students: 30	
abs	n
100.0	0.0
Provides: doc. RNDr. Ľubomír Šnajder, PhD.	
Date of last modification: 03.05.2015	
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of 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: 2., 4.					
Course level: I., II.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 171					
A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0
Provides:					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Mária Ganajová, CSc., prof. RNDr. Stanislav Krajčí, PhD., prof. PhDr. Oľga Orosová, CSc.					