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COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: CJP/ PFAJAKA/07		Course name: Academic English			
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: combined, present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course:					
Course level: I., II., N					
Prerequisites:					
Conditions for course completion: Combined method of teaching (classroom/distance) Active classroom participation, assignments handed in on time, 2 absences tolerated 1 test (10th week), no retake. (in classroom, in case of distance learning due to worsened epidemiological situation – online) Presentation on chosen topic (in case of distance learning - online thorough MS Teams) Final evaluation- average assessment of test (40%), essay (30%) and presentation (30%). Grading scale: A 93-100%, B 86-92%, C 79-85%, D 72-78%, E 65-71%, FX 64% and less					
Learning outcomes:					
Brief outline of the course:					
Recommended literature: Seal B.: Academic Encounters, CUP, 2002 T. Armer :Cambridge English for Scientists, CUP 2011 M. McCarthy M., O'Dell F. - Academic Vocabulary in Use, CUP 2008 Zemach, D.E, Rumisek, L.A: Academic Writing, Macmillan 2005 Olsen, A. : Active Vocabulary, Pearson, 2013 www.bbclearningenglish.com Cambridge Academic Content Dictionary, CUP, 2009					
Course language: English language, level B2 according to CEFR.					
Notes:					
Course assessment Total number of assessed students: 379					
A	B	C	D	E	FX
33.77	22.16	15.3	10.03	6.6	12.14
Provides: Mgr. Viktória Mária Slovenská					
Date of last modification: 17.09.2020					

Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ PPPy/18	Course name: Advanced programming in Python
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: 6.	
Course level: I.	
Prerequisites: ÚINF/PAZ1a/15 and leboÚINF/ePAZ1a/15 and leboÚINF/PRG1/15	
Conditions for course completion: Continuous assignment - 50% Midterm test and final test - 50% or The final project - 100%	
Learning outcomes: Problem solving in Python with using various modules, to implement and use algorithms to solve selected problems, knowledge of the principles of object-oriented programming and its implementation in Python.	
Brief outline of the course: Introduction to the environment, basic features of Python, syntax. Simple types (number, logical type), structured types (string, list, dictionary, tuple, set) and control structures (loops, conditional statements, exception handling). Definition of functions (parameters, return value, variable number of parameters, default values of parameters). Generators. Import and creation of modules. Documentation of functions, modules, packages. Types of errors and error handling. Capturing and raising exceptions. Saving data to a file and reading data from a file. Data serialization. Open data formats. Definition of own classes. Decorators. Modules, packages. Tests and test-driven programming (unittest). Logging. Parallelism, threads and processes. Graphic interface for Python programs. Problem solving using Python. Classes and objects. Iterator, context manager. Object-oriented approach to problem solving. Custom data structures. Selected algorithms over data structures.	
Recommended literature:	

Pilgrim, M., (2012) Dive Into Python 3. PILGRIM, Mark. <https://github.com/downloads/diveintomark/diveintopython3/dive-into-python3.pdf>

SHIPMAN, John W. Tkinter 8.5 reference: a GUI for Python. Socorro, NM 87801: New Mexico Tech Computer Center, 2013. Dostupné také z: <https://anzeljg.github.io/rin2/book2/2405/docs/tkinter/tkinter.pdf>

LOTT, Steven F. Mastering Object-oriented Python. Birmingham B3 2PB, UK: Packt Publishing, 2014. ISBN 978-1-78328-097-1.

Course language:

The primary language is Slovak, English is useful for reading Python documentation

Notes:

Required knowledge: Ability to implement simple programs in a selected programming language (eg Java, Pascal, C ...), basic knowledge of the principles of object-oriented programming.

Course assessment

Total number of assessed students: 23

A	B	C	D	E	FX
13.04	21.74	34.78	17.39	0.0	13.04

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

Date of last modification: 11.02.2021

Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ ALGa/10		Course name: Algebra I			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 3 Per study period: 42 / 42 Course method: present					
Number of ECTS credits: 7					
Recommended semester/trimester of the course: 1.					
Course level: I.					
Prerequisites:					
Conditions for course completion: According to the results from the semester and in view of the results of the written and oral final exam..					
Learning outcomes: To obtain basic knowledge from number theory concerning divisibility and from linear algebra concerning systems of linear equations. To be able to apply it in concrete excercises.					
Brief outline of the course: Divisibility in \mathbb{Z} . Fields. Systems of linear equations, Gauss elimination. Maps, permutations. Computing with matrices. Determinants, Cramer rule.					
Recommended literature: T.S Blyth, E.F. Robertson: Basic linear algebra, Springer Verlag, 2001. K. Jänich: Linear algebra, Springer Verlag, 1991.					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 1279					
A	B	C	D	E	FX
11.81	11.65	19.0	17.9	28.3	11.34
Provides: prof. RNDr. Danica Studenovská, CSc., RNDr. Igor Fabrici, Dr., RNDr. Lucia Janičková, PhD., RNDr. Simona Rindošová, RNDr. Ivana Varga					
Date of last modification: 31.01.2019					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ ALG2b/10		Course name: Algebra II			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 4 / 2 Per study period: 56 / 28 Course method: present					
Number of ECTS credits: 7					
Recommended semester/trimester of the course: 2.					
Course level: I.					
Prerequisites: ÚMV/ALGa/10					
Conditions for course completion: According to tests and to the exam.					
Learning outcomes: To obtain basic knowledge on matrices, linear spaces, linear transformations and polynomials and their roots over a field; to be able to apply the theory in concrete excercises.					
Brief outline of the course: Linear spaces, bases. Rank of a matrix. Systems of homogeneous linear equations. Linear transformations. Ring, fields. Polynomials over a field. Factorization into irreducible factors, roots. Roots of complex numbers. Cubic equations. Polynomials with several unknowns, symmetric polynomials.					
Recommended literature: A. Kurosh: Higher Algebra, Mir Publishers, 1975.					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 173					
A	B	C	D	E	FX
20.81	16.18	16.18	15.61	27.75	3.47
Provides: prof. RNDr. Danica Studenovská, CSc.					
Date of last modification: 31.01.2019					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ ALG3b/10		Course name: Algebra II for informaticians and physicists			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 4 / 2 Per study period: 56 / 28 Course method: present					
Number of ECTS credits: 7					
Recommended semester/trimester of the course: 4.					
Course level: I., II.					
Prerequisites: ÚMV/ALGa/10					
Conditions for course completion: Exam					
Learning outcomes: To provide deeper knowledge on vector spaces, linear transformations and Euclidean spaces.					
Brief outline of the course: Vector spaces, subspaces. A basis, a dimension and a characterization of n-dimensional vector spaces. The rank of a matrix. Linear transformations and their matrices. Operations with linear transformations, matrices of sums and compositions of linear transformations. Regular linear transformations, regular matrices. Similar matrices. Characteristic vectors and characteristic values of linear transformations. Affine spaces, subspaces and their positions. Euclidean spaces, the distance of subspaces. Conics and quadrics.					
Recommended literature: A. F. Beardon: Algebra and Geometry, Cambridge University Press, 2005 G. Birkhoff, S. Mac Lane: A Survey of Modern Algebra, New York 1965					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 262					
A	B	C	D	E	FX
14.12	10.69	11.83	18.7	33.59	11.07
Provides: doc. RNDr. Roman Soták, PhD., RNDr. Mária Maceková, PhD.					
Date of last modification: 26.03.2020					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ ATC/10		Course name: Algebra and number theory			
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: 4.					
Course level: I.					
Prerequisites: ÚMV/ALG2b/10					
Conditions for course completion: It is based on the results of written checks carried out during the semester. Final evaluation is based on the results of written checks carried out during the semester, of test, written and oral exam.					
Learning outcomes: Obtain basic knowledge about groups and from the elementary number theory.					
Brief outline of the course: Groups, subgroups, quotient groups, homomorphism theorems for groups, selected topics of the number theory.					
Recommended literature: G.Birkoff, S.Mac Lane: A Survey of Modern Algebra, New York 1965 I.R. Shafarevich: Basic Notions of Algebra, Springer, 2005					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 159					
A	B	C	D	E	FX
15.09	18.87	27.04	20.13	15.09	3.77
Provides: doc. RNDr. Matúš Harminc, CSc.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ ASU1/15	Course name: Algorithms and data structures
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: 4.	
Course level: I.	
Prerequisites: (ÚINF/PAZ1a/15 and leboÚINF/ePAZ1a/15),(ÚINF/PAZ1b/15 and leboÚINF/ePAZ1b/15)	
Conditions for course completion: Practice activities, homeworks and midterm exam. Final examination consisting of practice and theoretical test.	
Learning outcomes: Understand and learn algorithmic paradigms and data structures. Analyse time complexity of these algorithms.	
Brief outline of the course: Algorithms' time and space asymptotic complexity. Main Theorem. Amortized complexity. Brute Force. Backtrack. Divide and Conquer. Dynamic programming. Comparison and non-comparison sort algorithms. Sweep line algorithms. Graph Theory Algorithms. Data structures – queue, stack, priority queue, heap, prefix sum, binary search trees, interval trees, union & find, trie.	
Recommended literature: 1, Laaksonen A.: Guide to Competitive Programming: Learning and Improving Algorithms Through Contests (Undergraduate Topics in Computer Science), Springer, 2017, ISBN 978-3319725468 2, Forišek M., Steinová M.: Explaining Algorithms Using Metaphors. Springer Briefs in Computer Science, Springer (2013), ISBN 978-1-4471-5018-3 3, R. Sedgewick, K. Wayne: Algorithms (4th Edition), Addison-Wesley Professional, 2011, ISBN 978-0321573513, http://algs4.cs.princeton.edu/home/ 4, Open Data Structures: http://opendatastructures.org/	
Course language: Slovak or english	
Notes: Content prerequisites: - programming skills in some programming language (Python/Java/C++/...) - mathematics: -- computing with polynomials, logarithmic and exponential functions	

-- computing limits of sequences, L'Hospital rule					
Course assessment					
Total number of assessed students: 134					
A	B	C	D	E	FX
11.94	5.97	17.16	23.13	38.81	2.99
Provides: prof. RNDr. Gabriel Semanišin, PhD., RNDr. Rastislav Krivoš-Belluš, PhD.					
Date of last modification: 25.02.2021					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: KPE/ ALP/06		Course name: Alternative Education			
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course: 4.					
Course level: I.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 208					
A	B	C	D	E	FX
64.9	30.77	1.44	0.96	0.48	1.44
Provides: Mgr. Katarína Petříková, PhD.					
Date of last modification: 12.02.2021					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ APS1/15		Course name: Applied probability and statistics			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present					
Number of ECTS credits: 5					
Recommended semester/trimester of the course: 5.					
Course level: I.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes: Acquired basic concepts and techniques of probability theory, statistics and corresponding software.					
Brief outline of the course: Events, probability. Laws of probability distributions, characteristics of location, variability and dependency. Samples, estimates and tests of hypotheses. Modeling of dependencies, noise and smoothing. Bayes theory of decision. Pseudorandom values and Monte Carlo method.					
Recommended literature: - Cs. Török: Úvod do teórie pravdepodobnosti a matematickej štatistiky, Košice, 1992 - M.R.Spiegel, J.J.Schiller, R.A.Srinivasan, Probability and Statistics, McGraw Hill, 2009 - J. Maindonald, W.J. Braun, Data Analysis and Graphics Using R – an Example-Based Approach, CAMBRIDGE UNIVERSITY PRESS, 2010					
Course language: Slovak or english					
Notes: Content prerequisites: the basics of differential and integral calculus					
Course assessment Total number of assessed students: 74					
A	B	C	D	E	FX
17.57	17.57	21.62	12.16	29.73	1.35
Provides: doc. RNDr. Csaba Török, CSc.					
Date of last modification: 10.02.2021					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ AFJ1a/15		Course name: Automata and formal languages			
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: 4.					
Course level: I.					
Prerequisites:					
Conditions for course completion: Oral examination.					
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: Chomsky hierarchy of grammars and languages. Finite-state transducers and mapping, construction of a reduced automaton. Finite-state acceptors, nondeterministic acceptors, regular expressions. Closure properties of regular languages. Context-free grammars, Chomsky and Greibach normal forms. Pushdown automata, Pumping lemma. Closure properties of context-free languages.					
Recommended literature: J.E. Hopcroft, R.Motwani, J.D. Ullman: Introduction to automata theory, languages, and computation, Addison-Wesley, 2001. J. Shallit: A second course in formal languages and automata theory, Cambridge University press, 2009. M. Sipser: Introduction to the theory of computation, Thomson Course Technology, 2006.					
Course language:					
Notes:					
Course assessment Total number of assessed students: 832					
A	B	C	D	E	FX
25.36	18.03	23.92	17.91	9.86	4.93
Provides: Mgr. Alexander Szabari, PhD., prof. RNDr. Viliam Geffert, DrSc., RNDr. Zuzana Bednárová, PhD.					
Date of last modification: 24.08.2018					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ AFJ1b/15		Course name: Automata and formal languages			
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: 5.					
Course level: I., II.					
Prerequisites: ÚINF/AFJ1a/15					
Conditions for course completion: Test and oral examination.					
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: Chomsky and Greibach normal forms of context free gramars. Pushdown automata. Pumping lemma. Closure properties of context free and deterministic context free languages. Context sensitive grammars and linearly-bounded Turing machines. Phrase-structure grammars and Turing machines. Post correspondence problem. Undecidable problems in the theory of formal languages.					
Recommended literature: J.E. Hopcroft, R.Motwani, J.D. Ullman: Introduction to automata theory, languages, and computation, Addison-Wesley, 2001. J. Shallit: A second course in formal languages and automata theory, Cambridge University press, 2009. M. Sipser: Introduction to the theory of computation, Thomson Course Technology, 2006.					
Course language:					
Notes:					
Course assessment Total number of assessed students: 567					
A	B	C	D	E	FX
37.92	15.87	19.75	17.64	6.17	2.65
Provides: prof. RNDr. Viliam Geffert, DrSc., Mgr. Alexander Szabari, PhD., RNDr. Zuzana Bednárová, PhD.					
Date of last modification: 01.06.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ BKP/14	Course name: Bachelor Project
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 5.	
Course level: I.	
Prerequisites:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment	
Total number of assessed students: 5	
abs	n
100.0	0.0
Provides:	
Date of last modification:	
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ BPO/14		Course name: Bachelor Thesis and its Defence			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present					
Number of ECTS credits: 4					
Recommended semester/trimester of the course:					
Course level: I.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 95					
A	B	C	D	E	FX
44.21	27.37	13.68	8.42	6.32	0.0
Provides:					
Date of last modification: 09.01.2019					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ BKP2/14	Course name: Bachelor project
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 1 Per study period: 14 Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 5.	
Course level: I.	
Prerequisites:	
Conditions for course completion: To prepare and present a contribution related to thesis and its topic.	
Learning outcomes: To get students familiar with basic knowledge on the form and content of thesis and thesis presentation as well as with the support for its realisation.	
Brief outline of the course: Necessary elements and formal aspects of a thesis. WYSIWYG editors, LaTeX, drawing programs. Presentation software, Microsoft PowerPoint and its clones, Beamer. Suggestions for presentation and contribution making.	
Recommended literature: electronic information sources	
Course language: Slovak or English	
Notes:	
Course assessment Total number of assessed students: 134	
abs	n
100.0	0.0
Provides: doc. RNDr. Dušan Šveda, CSc.	
Date of last modification: 03.05.2015	
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ BPO/14		Course name: Bachelor thesis and its defence			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present					
Number of ECTS credits: 4					
Recommended semester/trimester of the course:					
Course level: I.					
Prerequisites:					
Conditions for course completion: Acquiring the required number of credits in the structure defined by the study plan.					
Learning outcomes: Evaluation of student's competences with respect to the profile of the graduate.					
Brief outline of the course: Presentation of results of the bachelor thesis, answering the questions of the thesis supervisor and answering the questions of members of evaluation committee.					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 65					
A	B	C	D	E	FX
67.69	20.0	6.15	4.62	1.54	0.0
Provides:					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚBEV/ BDD/05		Course name: Biology of Children and Adolescents			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 0 Per study period: 28 / 0 Course method: present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course: 4., 6.					
Course level: I.					
Prerequisites:					
Conditions for course completion: Written test					
Learning outcomes: The aim of the subject is to gain the particular level of knowledge about human body and its development. It is necessary for the understanding of specific biological characteristics of children and adolescents linked to development.					
Brief outline of the course: Human ontogenesis. Postnatal development. Age specific features of skeletal and muscular, circulatory, respiratory, gastrointestinal and urinary systems. Reproductive system. Endocrine system. Nervous system. Age specifics of selected diseases and drug dependence arise. Human population and environment.					
Recommended literature: Drobný I., Drobná M.: Biológia dieťaťa pre špeciálnych pedagógov I. a II. Bratislava, PdF UK, 2000 Lipková V.: Somatický a fyziologický vývoj dieťaťa. Osveta Bratislava, 1980 Malá H., Klementa J.: Biológia detí a dorastu. Bratislava, SPN, 1989					
Course language:					
Notes:					
Course assessment Total number of assessed students: 1473					
A	B	C	D	E	FX
31.5	23.35	17.45	17.58	9.57	0.54
Provides: doc. RNDr. Monika Kassayová, CSc.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ ZBR/14	Course name: Bridge fundamentals
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: 5.	
Course level: I.	
Prerequisites:	
Conditions for course completion: Active participation on exercises.	
Learning outcomes: A student gets acquainted with fundamentals of the contract bridge, develops his/her logical thinking and consolidates his/her habits of positive social behaviour.	
Brief outline of the course: Bridge rules. Principles of the bidding system Standard American. Basic techniques of declarer's play. Basic techniques of the defence. Lead conventions, signals. Common bidding conventions. Selected advanced techniques of the card play. Partnership cooperation in the contract bridge. Bridge ethics.	
Recommended literature: T. Menyhért: Kurz bridžu 2013, http://new.bridgekosice.sk/kurz-bridzu-2013/ R. Pavlicek: Learn To Play Bridge!, http://www.rpbridge.net/1a00.htm ACBL SAYC System Booklet, http://ebookbrowse.net/acbl-sayc-pdf-d201415187	
Course language: Slovak or English	
Notes: Minimum number of participants is 4.	
Course assessment Total number of assessed students: 25	
abs	n
96.0	4.0

Provides: doc. RNDr. Miroslav Ploščica, CSc., prof. RNDr. Mirko Horňák, CSc.

Date of last modification: 03.05.2015
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Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KOP/ OPaPDV/14	Course name: Civil Law and Intellectual Property Rights
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., 5.	
Course level: I., N	
Prerequisites:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment	
Total number of assessed students: 103	
abs	n
94.17	5.83
Provides: doc. JUDr. Renáta Bačárová, PhD., LL.M., prof. JUDr. Peter Vojčík, CSc.	
Date of last modification: 16.12.2020	
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: CJP/ PFAJKKA/07	Course name: Communicative Competence in English
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: combined, present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: I., II., N	
Prerequisites:	
Conditions for course completion: Active participation in class and completed homework assignments. Students are allowed to miss two classes at the most. Online teaching (MS Teams), in case of an improved epidemiological situation = on-site teaching. 2 credit tests (presumably in weeks 6/7 and 12/13) and a short oral presentation in English. The tests will be taken online (MS Teams) during online teaching and in class in case of on-site classes. The presentation will be sent to the course instructor as a video recording. Final evaluation consists of the scores obtained for the 2 tests (70%) and the presentation (30%). Final grade will be calculated as follows: A 93-100 %, B 86-92%, C 79-85%, D 72-78%, E 65-71%, FX 64 % and less.	
Learning outcomes: Uplatnenie a aktívne používanie svojich teoretických vedomostí v praktických komunikačných situáciách. Zdokonalenie jazykových vedomostí a zručností študenta, rečovej, pragmatickej a vecnej kompetencie, predovšetkým zlepšujú komunikáciu, schopnosť prijímať a formulovať výpovede, efektívne vyjadrovať svoje myšlienky ako aj orientovať sa v obsahovom pláne výpovede. Precvičovanie rečových intencií kontaktných (napr. pozdravy, oslovenia, pozvanie, oslovenie), informatívnych (napr. získavanie a podávanie informácií, vyjadrenie priestorových a časových vzťahov), regulačných (napr. prosba, poďakovanie, zákaz, pochvala, súhlas, nesúhlas) a hodnotiacich (napr. vyjadrenie vlastného názoru, stanoviska, želania, emócií). Výsledkom budovania praktickej jazykovej kompetencie majú byť vedomosti a zručnosti zodpovedajúce požiadavkám a kritériám dokumentu Spoločný európsky referenčný rámec pre vyučovanie jazykov.	
Brief outline of the course: Rodina, jej formy a problémy Vyjadrovanie pocitov a dojmov Dom, bývanie a budúcnosť Formy a dialekty v anglickom jazyku Život v meste a na vidieku Kolokácie a idiomy, zaužívané slovné spojenia Prázdniny a sviatky vo svete	

<p>Životné prostredie a ekológia Výnimky zo slovosledu Frázové slovesá a ich použitie Charakteristiky neformálneho diškurzu</p>					
<p>Recommended literature: www.bbclearningenglish.com McCarthy M., O'Dell F.: English Vocabulary in Use, Upper-Intermediate. CUP, 1994. Misztal M.: Thematic Vocabulary. SPN, 1998. Fictumova J., Ceccarelli J., Long T.: Angličtina, konverzace pro pokročilé. Barrister and Principal, 2008. Peters S., Gráf T.: Time to practise. Polyglot, 2007. Jones L.: Communicative Grammar Practice. CUP, 1985. Alexander L.G.: Longman English Grammar. Longman, 1988.</p>					
<p>Course language: English language, B2 level according to CEFR</p>					
<p>Notes:</p>					
<p>Course assessment Total number of assessed students: 241</p>					
A	B	C	D	E	FX
38.59	22.41	19.5	9.54	6.64	3.32
<p>Provides: Mgr. Barbara Mitriková</p>					
<p>Date of last modification: 11.02.2021</p>					
<p>Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.</p>					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: CJP/ PFAJGA/07		Course name: Communicative Grammar in English			
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: combined, present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course:					
Course level: I., II., N					
Prerequisites:					
Conditions for course completion: Active classroom participation (max. 2x90 min. absences tolerated). 2 test (5th/6th and 12/13th week), no retake. Final evaluation- average assessment of tests. Grading scale: A 93-100%, B 86-92%, C 79-85%, D 72-78%, E 65-71%, FX 64% and less.					
Learning outcomes:					
Brief outline of the course:					
Recommended literature: Vince M.: Macmillan Grammar in Context, Macmillan, 2008 McCarthy, O'Dell: English Vocabulary in Use, CUP, 1994 C. Oxengen, C. Latham-Koenig: New English File Advanced, Oxford 2010 Misztal M.: Thematic Vocabulary, Fragment, 1998 www.bbclearningenglish.com ted.com/talks					
Course language:					
Notes:					
Course assessment Total number of assessed students: 406					
A	B	C	D	E	FX
39.66	18.97	16.75	8.62	5.91	10.1
Provides: Mgr. Lenka Klimčáková					
Date of last modification: 14.09.2019					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: KGER/ NJKG/07		Course name: Communicative Grammar in German Language			
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.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 54					
A	B	C	D	E	FX
59.26	11.11	9.26	3.7	9.26	7.41
Provides: Mgr. Blanka Jenčíková					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ TVY/15		Course name: Computability theory			
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: 5.					
Course level: I., II.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes: To provide theoretical background for studying computer science in general, by familiarising students with basic knowledge of the theory of computability.					
Brief outline of the course: Turing machine as a formalisation of the notion of an algorithm. Partial recursive functions. Kleene's normal form theorem. The equivalences of the notion of a function calculable by a Turing machine, partial recursive and calculable by a computer program. Algorithmical undecidability of the halting problem of a Turing machine and a computer program.					
Recommended literature: MACHTEY, M. and YOUNG, P.: An Introduction to the General Theory of Algorithms, North--Holland, Amsterdam 1978. BRIDGES, D. S.: Computability, A Mathematical Sketch book, Springer--Verlag 1994					
Course language:					
Notes:					
Course assessment Total number of assessed students: 277					
A	B	C	D	E	FX
46.93	11.91	13.0	5.78	6.14	16.25
Provides: prof. RNDr. Stanislav Krajčí, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ PSIN/15	Course name: Computer network Internet
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: 5	
Recommended semester/trimester of the course: 4.	
Course level: I.	
Prerequisites: ÚINF/PAZ1a/15 and leboÚINF/ePAZ1a/15 and leboÚINF/PRG1/15	
Conditions for course completion: Activity at excercises (max 18 points), home work (max 18 points), test (max 30 points). Verbal exam (min 25 points, max 50 points). Required minimum for passing the course is 64 points.	
Learning outcomes: To understand ISO OSI reference model for network communication, to analyze communication channels parameters, to understand different access methods, to be familiar with the function of center network devices (hub, switch, router), to understand IP protocol, IP addresses and the transfer of internet packets, to understand reliable data transfer of the TCP protocol, to be able to use Sockets in won application, to know basic application protocols.	
Brief outline of the course: 1. Introduction to computer networks, internet connection types, delay and loss in packet-switched networks, ISO OSI reference model and TCP/IP protocols family. 2. Application layer: Web and HTTP, protocol FTP ,e-mail and SMTP, POP3, IMAP, 3. Application layer: domain names and DNS, Peer-to-peer applications. Security in computer networks. 4. Transport layer: services, multiplexing and demultiplexing, protocol UDP, reliable data transfer 5. Transport layer: connection oriented transport protocol TCP, flow and congestion control. 6. Network Layer: Internet protocol IPv4, virtual circuit and datagram networks, packet fragmentation, routing table, application protocol DHCP 7. Network Layer: network address translation NAT, ICMP protocol, internet protocol IPv6 8. Network Layer: routing algorithms and protocols, broadcast and multicast routing 9. Link layer: error detection, multiple access methods CSMA/CD and CSMA/CA, Ethernet, frames, protocols ARP and RARP, link layer addressing 10. Link Layer and wireless and mobile networks: hub, switch, virtual LAN, 802.11 Wireless LAN, Bluetooth 802.15, WiMAX 802.16, Mobile IP, mobility in GSM 11. Physical Layer: Communication channels parameters, digital and analog encoding.	
Recommended literature: 1. J. F. Kurose, Keith W. Ross: Computer Networking: A Top-Down Approach, 7. edition, 2016 2. A. S. Tanenbaum: Computer Networks, 5. edition, Pearson, 2010 3. W. Stallings: Local and Metropolitan Area Networks, Prentice Hall, 2000	

4. E. Comer, R.E. Droms: Computer Networks and Internets, Prentice Hall, 2003					
5. W. R. Stevens: TCP/IP Illustrated, Vol.1: The Protocols, Addison-Wesley, 1994					
Course language:					
Notes:					
Course assessment					
Total number of assessed students: 759					
A	B	C	D	E	FX
9.62	5.27	12.38	16.47	37.29	18.97
Provides: doc. RNDr. Jozef Jirásek, PhD., RNDr. Peter Gurský, PhD.					
Date of last modification: 06.02.2019					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajči, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ KRS/15	Course name: Cryptographic systems and their applications
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: 3.	
Course level: I., II.	
Prerequisites:	
Conditions for course completion: Homeworks, midterm written exam, active participation in laboratory exercises. Final written exam, possibly oral exam.	
Learning outcomes: This course covers the basic knowledge in understanding and using cryptography. The main focus is on definitions, theoretical foundations, and rigorous proofs of security, with some programming practice. Topics include symmetric and public key encryption, message integrity, hash functions, block cipher design and analysis, number theory, and digital signatures. The course also provides an introduction to cryptographic protocols for authentication and key management, including PKI and certificates.	
Brief outline of the course: Classical cryptography, basic information theory, cryptanalysis, security of classical ciphers. Symmetric ciphers - stream ciphers, block ciphers (DES, AES), modes of operation. Asymmetric ciphers - RSA, Elgamal, elliptic curve cryptosystems. Hash functions, message authentication codes, digital signatures. Authentication, key establishment and distribution, certificates.	
Recommended literature: 1. PAAR, Ch., PELZL, J.: Understanding Cryptography, Springer 2010. 2. STINSON, D. R., PATERSON, M. B.: Cryptography: Theory and Practice. CRC Press, 2018. 3. MAO, W. Modern Cryptography: Theory and Practice. Prentice Hall, 2003. 4. MENEZES, A., OORSCHOT, P. van, VANSTONE, S.: Handbook of Applied Cryptography. CRC Press, 1996. 5. SCHNEIER, B.: Applied Cryptography, 20th Edition, John Wiley & Sons Inc., 2015	
Course language: Slovak or English	
Notes: Content prerequisites: basic number theory and algebra, basic programming	

Course assessment					
Total number of assessed students: 112					
A	B	C	D	E	FX
12.5	9.82	13.39	13.39	33.04	17.86
Provides: RNDr. Rastislav Krivoš-Belluš, PhD.					
Date of last modification: 22.02.2021					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ DBS1a/15		Course name: Database systems			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present					
Number of ECTS credits: 5					
Recommended semester/trimester of the course: 3.					
Course level: I., II.					
Prerequisites:					
Conditions for course completion: Tests, assignments.					
Learning outcomes: Acquired basic concepts and techniques of relational database theory and a corresponding software.					
Brief outline of the course: Relational DB, SQL, Filtration, Grouping and Aggregation, Join, Three-Value Logic. Data and database models, database design, integrity, ER diagrams. DWH data warehouses, data cubes, pivot. Data science. Normalization 1.					
Recommended literature: - J. ULLMAN: Principles of database and knowledge – base systems, Comp. Sci. Press., 1988 - R. Ramakrishnan, J. Gehrke, Database Management Systems, McGraw-Hill, 2003 - HENDERSON, K.: The Guru's Guide to Transact SQL, Addison Wesley Professional, 2000					
Course language:					
Notes:					
Course assessment Total number of assessed students: 857					
A	B	C	D	E	FX
10.62	9.22	17.97	22.75	32.56	6.88
Provides: doc. RNDr. Csaba Török, CSc.					
Date of last modification: 26.02.2020					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ DBS1b/15		Course name: Database systems			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present					
Number of ECTS credits: 6					
Recommended semester/trimester of the course: 4.					
Course level: I.					
Prerequisites: ÚINF/DBS1a/15 and leboÚINF/DBdi/15					
Conditions for course completion: Tests, assignments.					
Learning outcomes: Advanced techniques of relational databases and theoretical fundamentals of DB normalization and relational algebra. NoSQL					
Brief outline of the course: Stored procedures, functions. Triggers. Views. CTE, recursion and transitive closure. Set operations. Window functions. Transactions. Cursors. B-trees and indexes. XML, JSON. Relational algebra. Functional Dependencies and Essential Tuple NF. Big Data and NoSQL, MongoDB, CRUD and Cursors, Aggregations and Indexes, Replication and Sharding.					
Recommended literature: - K. Chodorow, MongoDB: The Definitive Guide, O'Reilly, second edition, 2013 - Date C.J., Database Design and Relational Theory, O'Reilly, 2012 - Itzik Ben-Gan, Microsoft SQL Server, 2012 T-SQL Fundamentals, O'Reilly, 2012 - L. Davidson, J.M. Moss, Pro SQL Server 2012 Relational database Design and Implementation, APRESS, 2012					
Course language:					
Notes: If necessary, teaching, mid-term and final evaluation will be by distance form.					
Course assessment Total number of assessed students: 710					
A	B	C	D	E	FX
10.0	8.45	12.25	24.08	34.93	10.28
Provides: doc. RNDr. Csaba Török, CSc.					
Date of last modification: 30.03.2020					

Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ DSMa/10		Course name: Discrete mathematics I			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present					
Number of ECTS credits: 5					
Recommended semester/trimester of the course: 3.					
Course level: I.					
Prerequisites:					
Conditions for course completion: Examination.					
Learning outcomes: To be familiar with some factual knowledge of combinatorics and graph theory. To understand and appreciate mathematical notions, definitions, and proofs, to solve problems requiring more than just standard recipes, and to express mathematical thoughts precisely and more rigorously.					
Brief outline of the course: Basic principles. Counting and binomial coefficients, Binomial theorem, polynomial theorem. Recurrence: Some miscellaneous problems, Fibonacci-type relations, Using generating functions, miscellaneous methods. The inclusion-exclusion principle. Rook polynomials. Introduction to graphs: The concept of graphs, paths in graphs. Connectivity. Trees, bipartite graphs. Planarity. Polyhedra. Traveling round a graph: Eulerian graphs, Hamiltonian graphs. Partitions and colourings: Vertex colourings of graphs. Edge colourings of graphs					
Recommended literature: 1. I. Anderson, A first course in discrete mathematics, Springer-Verlag London, 2001. 2. J. Matoušek and J. Nešetřil, Invitation to discrete mathematics, Oxford University Press Inc. , New York 1999.					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 300					
A	B	C	D	E	FX
15.67	17.67	21.0	24.67	17.67	3.33

Provides: doc. RNDr. Roman Soták, PhD., RNDr. Mária Maceková, PhD.
Date of last modification: 20.09.2020
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ DSMb/10	Course name: Discrete mathematics II
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course: 4.	
Course level: I.	
Prerequisites: ÚMV/DSMa/10 and leboÚMV/DSM3a/10	
Conditions for course completion: Two tests during the semester It is made on the base of results of two tests during the semester (50%) and a final written exam and an oral exam (50%)	
Learning outcomes: Mastered fundamental methods of graph theory. To be familiar with some possibilities of applications of graph theory	
Brief outline of the course: Introduction to graphs. Connectivity and distance in graphs. Trees, spanning subgraphs Independence and coverings. Introduction to the Ramsey theory. Introduction to the extremal graph theory. Matchings: Theorem of Hall, theorem of Berge, optimal assignment problems. Vertex colorings: Theorem of Brooks, Theorem of Erdos and Szekeres. Chromatic polynomials. Edge colourings, Theorem of Koenig. Introduction to directed graphs: Basic notions, connectivities, tournaments, acyclic graphs, base and kernel of a graph. Introduction to applications of graphs.	
Recommended literature: 1. A. Bondy and U.S.R. Murty: Graph theory, Springer-Verlag 2008 2. G. Chartrand, L. Lesniak, and P. Zhang, Graphs and digraphs, CRC Press, Boca Raton 2011 3. R. Diestel: Graph Theory, Springer-Verlag, New York, Inc. 1997 4. M.N.S. Swamy and K. Thulasiraman: Graphs, Networks and Algorithms. Willey Interscience Publ., New York 1981	
Course language: Slovak	

Notes:					
Course assessment					
Total number of assessed students: 170					
A	B	C	D	E	FX
13.53	10.0	24.12	27.06	18.82	6.47
Provides: RNDr. Igor Fabrici, Dr., RNDr. Mária Maceková, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ DSMc/10	Course name: Discrete mathematics III
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: I.	
Prerequisites: ÚMV/DSMb/10	
Conditions for course completion: Two tests during the semester It is made on the base of results of two tests during the semester (50%) and a final written exam and an oral exam (50%)	
Learning outcomes: Mastered fundamental methods of graph theory. Abilities of applications of graph theory.	
Brief outline of the course: Eulerian and Hamiltonian graphs. Connectivity: Theorem of Menger. Matching: Theorem of Tutte. Planar graphs: Theorem of Kuratowski. Plane graphs: Euler polyhedral formula and its consequences, Introduction to the theory of light graphs in plane graphs. Colourings of plane graphs. Crossing numbers of graphs. Introduction to the topological graph theory. Edge colourings: Theorem of Vizing. Application of Graph theory: The shortest path problem, the critical path method.	
Recommended literature: 1. A. Bondy and U.S.R. Murty: Graph theory, Springer-Verlag 2008 2. G. Chartrand, L. Lesniak, and P. Zhang, Graphs and digraphs, CRC Press, Boca Raton 2011 3. R. Diestel: Graph Theory, Springer-Verlag, New York, Inc. 1997 4. M.N.S. Swamy and K. Thulasiraman: Graphs, Networks and Algorithms. Willey Interscience Publ., New York 1981	
Course language: Slovak	
Notes:	

Course assessment					
Total number of assessed students: 77					
A	B	C	D	E	FX
15.58	31.17	15.58	24.68	12.99	0.0
Provides: prof. RNDr. Tomáš Madaras, PhD., RNDr. Mária Maceková, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/PUDB/15	Course name: Drug Addiction Prevention in University Students
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., 5.	
Course level: I.	
Prerequisites:	
Conditions for course completion: Students can get a maximum of 50 points for the course: Part 1 of the assessment: participation in the training (30p) - replaces the classic lessons, students choose the date of the training at the introductory first meeting to the course, therefore their participation is necessary. As the training takes place in two days, participation in the entire training is required. If it is impossible to participate in both days of training, the student must change to another date of training, which he will be able to complete. The training takes place partly over the weekend and also outside the school or in the training center in Danišovce (it starts on Thursday evening and ends on Saturday with lunch). The costs of accommodation, meals and travel are paid by the student himself. 2nd part of assessment: workshops (20p) - they replace classic lectures, are held 4 times per semester and for each workshop the student can get 5p (a total of 20p for workshops). In total, students can get 50p per subject and the final evaluation is as follows: 50 – 45: A; 44 – 40: B; 39 – 35: C; 34 – 30: D; 29 – 25: E; 24 a menej: FX. Any modifications to the implementation of the course in connection with the current order of the Rector are listed in the electronic board of the course.	
Learning outcomes: To provide students with more detailed information on the psychological aspects of drug prevention through an interesting, engaging explanation of theory and practice. Development of skills relevant for the prevention of drug use also through the use of experiential methods in teaching.	
Brief outline of the course:	
Recommended literature: Orosová, O. a kol. (2012). Základy prevencie užívania drog a problematického používania internetu v školskej praxi. Košice: UPJŠ. Sloboda, Z., & Bukoski, J. (Eds.). (2006). Handbook of Drug Abuse Prevention: Theory, Science, and Practice. New York: Springer.	
Course language: slovak	
Notes:	

Course assessment					
Total number of assessed students: 407					
A	B	C	D	E	FX
69.29	22.6	5.65	2.21	0.25	0.0
Provides: prof. PhDr. Ol'ga Orosová, CSc., Mgr. Marta Dobrowolska Kulanová, PhD., Mgr. Lucia Barbierik, PhD.					
Date of last modification: 16.02.2021					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ EDS/15	Course name: Educational software
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: 5.	
Course level: I.	
Prerequisites:	
Conditions for course completion: 1 Preparation of interim assignments: a) Worksheet for student (with custom graphics) b) Multimedia educational presentation (with pictures, animations and sounds) c) Interactive educational quiz (with several types of quiz items) d) Methodological guidance on the use of interactive applications in teaching selected topic of chosen school subject. 2 Creation and presentation of final project on the use of educational software in education.	
Learning outcomes: 1. To acquire an overview of the educational software types and its exploitation in education. 2. To gain or enhance basic skills in working with: a) presentation software, programs for creation and editing images, animations, diagrams, sounds, concept maps, b) programs for creation of quizzes, questionnaires, voting, c) simulation and modeling software, d) selected subject-oriented educational programs, 3. To create and present a final project on the use of educational software in education.	
Brief outline of the course: Educational software types. Onlilne educational sources and tools. Multimedia processing. Tools for creation of teaching aids.	
Recommended literature: 1. Digitálna gramotnosť učiteľa : učebný materiál- modul 1 / Rastislav Adámek ... [et al.]. - Košice : Ústav informácií a prognóz školstva, 2009. - 80 s. - ISBN 9788080861193(brož.). 2. Moderná didaktická technika v práci učiteľa : učebný materiál modul 2 / Rastislav Adámek ... [et al.] ; recenzenti Viliam Fedák, Anton Lavrin. - Košice : Elfa, 2010. - 200 s. - ISBN 9788080861353 (brož.). 3. Web, Multimédiá / Martin Homola ... [et al.]. - Bratislava : Štátny pedagogický ústav, 2010. - 68 s. - Č. projektu: ŠPVV ĎVUi 26120130001. - ISBN 9788081180514 (brož.).	
Course language:	

Notes:

Content of lessons will be flexibly adapted to the field of study of learners. Language learners will be able to work more with pictures and sounds, physicists with simulation programs, mathematicians with mathematical software, etc.

Course assessment

Total number of assessed students: 52

A	B	C	D	E	FX
61.54	19.23	13.46	0.0	5.77	0.0

Provides: doc. RNDr. Ľubomír Šnajder, PhD.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: CJP/ PFAJ4/07	Course name: English Language of Natural Science
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 4.	
Course level: I.	
Prerequisites:	
Conditions for course completion: Distant form of study (Online through MS teams) - based on the syllabus Active participation in class and completed homework assignments. Students are allowed to miss 2 classes at the most (in case of online form - not attending online class/ assignments not handed in) Continuous assessment: 2 credit tests taken thorough MS Teams online (presumably in weeks 6 and 13) and academic presentation in English given through MS Teams online. In order to be admitted to the final exam, a student has to score at least 65 % as a sum of both credit tests. The exam test results represent 50% of the final grade for the course, continuous assessment results represent the other 50% of the final grade. The final grade for the course will be calculated as follows: A 93-100, B 86-92, C 79-85, D 72-78, E 65-71, FX 64 and less.	
Learning outcomes: Enhancement of students' language skills (speaking, writing, reading and listening comprehension) in English for specific purposes and development of students' language competence (familiarization with selected phonological, lexical and syntactic phenomena), improvement of students' pragmatic competence (familiarization with selected language functions) and improvement of presentation skills at B2 level (CEFR) with focus on terminology of English for natural science.	
Brief outline of the course: 1. Introduction to studying language 2. Selected aspects of scientific language 3. Talking about academic study 4. Discussing science 5. Defining scientific terminology and concepts 6. Expressing cause and effect 7. Describing structures 8. Explaining processes 9. Comparing objects, structures and concepts 10. Talking about problem and solution 11. Referencing authors	

- 12. Giving examples
 - 13. Visual aids and numbers
 - 14. Referencing time and place
- Presentation topics related to students' study fields.

Recommended literature:

study materials provided by the course instructor

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

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

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

Murphy, R.: English Grammar in Use. Cambridge University Press, 1994.

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

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

www.isllibrary.com

Course language:

Notes:

Course assessment

Total number of assessed students: 2605

A	B	C	D	E	FX
37.16	25.03	17.04	10.21	8.29	2.26

Provides: Mgr. Lenka Klimčáková, Mgr. Barbara Mitříková, Mgr. Viktória Mária Slovenská, PhDr. Helena Petruňová, CSc.

Date of last modification: 14.02.2021

Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ BSSMI/15		Course name: Essentials 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: I.					
Prerequisites: ÚINF/PSIN/15, ÚINF/PAZ1b/15, ÚINF/OSY1/15, ÚINF/AFJ1a/15, ÚINF/SLO1a/15					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 6					
A	B	C	D	E	FX
16.67	16.67	0.0	0.0	66.67	0.0
Provides:					
Date of last modification: 16.06.2017					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ FRPa/19		Course name: Function of real variable			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 4 Per study period: 28 / 56 Course method: present					
Number of ECTS credits: 7					
Recommended semester/trimester of the course: 1.					
Course level: I.					
Prerequisites:					
Conditions for course completion: Written exam.					
Learning outcomes: The course provides an introductory knowledge on basic tools of differential and integral calculus of real functions of one real variable, and a development of certain calculation skills in the field.					
Brief outline of the course: 1. Basics of mathematical logic and notations. 2. Real functions - basic notions, operation, graphs, continuity. 3. Differential calculus of functions of one real variable - differentiability, using the derivative. 4. Integral calculus of functions of one real variable - Newton integral.					
Recommended literature: 1. Brannan, D.: A First Course in Mathematical Analysis, Cambridge University Press, Cambridge 2006. 2. Bruckner, A. M., Bruckner J. B., Thomson, B. S.: Real Analysis, Second Edition, ClassicalRealAnalysis.com, 2008. 3. Zorich, V. A.: Mathematical Analysis I, Springer-Verlag 2002.					
Course language:					
Notes:					
Course assessment Total number of assessed students: 621					
A	B	C	D	E	FX
7.89	9.02	15.46	22.38	35.59	9.66
Provides: doc. RNDr. Ondrej Hutník, PhD., RNDr. Jaroslav Šupina, PhD., RNDr. Lenka Halčinová, PhD.					
Date of last modification: 26.03.2019					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ GEO2a/15	Course name: Geometry I
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: 5	
Recommended semester/trimester of the course: 6.	
Course level: I.	
Prerequisites:	
Conditions for course completion: Two written tests. Written and oral examinations For continuous evaluation - max. 40 points for the written test - max. 20 points for oral exams - max. 40 points) Final score: A: 100-91 points, B: 90-81, C: 80-71, D: 70-61, E: 60-51, F: less than 51 points Note: In each of the student needs to have at least 40% max. number of points	
Learning outcomes: To acquaint students with the analytical geometry of linear and quadratic figures in Affine and Euclidean space.	
Brief outline of the course: Affine n-dimensional space - definition. Linear coordinate system. Subspaces, the parametric and non-parametric representation. The relative position of the two subspaces. Bundles of lines. The arrangement of points on the line. Convex sets. Changing the system of linear coordinates. Euclidean space - definition of (scalar and outer product). Euclidean distances and deviations subspaces. The rate of the size of convex sets. Triangle and trigonometric theorems. Conic and line.	
Recommended literature: 1. M.Sekanina, L.Boček, M.Kočandrlé, J.Šedivý: Geometrie 1, SPN Praha 1986 2. M.Hejný, V.Zaťko, P.Kršňák: Geometria 1, SPN Bratislava 1985 3. J.Eliaš, J.Horváth, J.Kajan: Zbierka úloh z vyššej matematiky 1, Alfa Bratislava	

4. M.Trenkler: Materiály uvedené na Internete.					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 137					
A	B	C	D	E	FX
18.25	16.79	21.9	18.25	16.06	8.76
Provides: doc. RNDr. Dušan Šveda, CSc., RNDr. Lucia Janičková, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: KF/DF2p/03		Course name: History of Philosophy 2 (General Introduction)			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 1 Per study period: 28 / 14 Course method: present					
Number of ECTS credits: 4					
Recommended semester/trimester of the course: 6.					
Course level: I., 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: 739					
A	B	C	D	E	FX
60.89	13.8	12.58	8.66	3.38	0.68
Provides: Doc. PhDr. Peter Nezník, CSc.					
Date of last modification: 25.03.2020					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: KPE/ INP/17		Course name: Inclusive Pedagogy			
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: 5.					
Course level: I.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 42					
A	B	C	D	E	FX
83.33	16.67	0.0	0.0	0.0	0.0
Provides: PaedDr. Janka Ferencová, PhD.					
Date of last modification: 12.02.2021					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ IKTP/15		Course name: Information and Communication Technologies			
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: combined, present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course: 3., 5.					
Course level: I.					
Prerequisites:					
Conditions for course completion: Problems solved during the semester. A final project using presentation programs, spreadsheet programs, text processors, internet resources and search tools. The ECDL certificate (all 7 modulus) is accepted as the exam with the ranking "A-výborne".					
Learning outcomes: To achieve and extend fundamental information and communication knowledge to the level which is acceptable in the EU region.					
Brief outline of the course: Text processing using a word processor. Processing and evaluation of information using a spreadsheet. Search, retrieval and exchange of information via the Internet. Creating presentations.					
Recommended literature: 1. Franců, M: Jak zvládnout testy ECDL. Praha : Computer Press, 2007. 160 s. ISBN 978-80-251-1485-8. 2. Jančařík, A. et al.: S počítačem do Evropy – ECDL. 2. vydanie. Praha : Computer Press, 2007. 152 s. ISBN 80-251-1844-3. 3. Kolektív autorov: Syllabus ECDL verzia 5.0. [on-line] [citované 9.2.2010]. Dostupné na internete: < http://www.ecdl.sk/buxus/docs//interne_informacie/Syllabus_V5.0/20090630ECDL-SyllabusV50_SK-V01_FIN.pdf >.					
Course language:					
Notes:					
Course assessment Total number of assessed students: 1022					
A	B	C	D	E	FX
65.46	17.71	6.95	3.52	1.66	4.7
Provides: Mgr. Alexander Szabari, PhD., doc. RNDr. Ľubomír Šnajder, PhD.					

Date of last modification: 03.05.2015

Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ IBdi/15		Course name: Information security principles			
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., 6.					
Course level: I.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 28					
A	B	C	D	E	FX
25.0	21.43	25.0	10.71	3.57	14.29
Provides: RNDr. JUDr. Pavol Sokol, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: Dek. PF UPJŠ/USPV/13	Course name: Introduction to Study of Sciences
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: Per study period: 12s / 3d Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 1.	
Course level: I.	
Prerequisites:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment	
Total number of assessed students: 1731	
abs	n
86.48	13.52
Provides:	
Date of last modification: 25.09.2019	
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ UKA1/15		Course name: Introduction to cognitive algorithms			
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: 4.					
Course level: I.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes: Overview of central nervous system and algorithms to describe it.					
Brief outline of the course: Overview of the cognitive processes in the human brain and of computational algorithms used to describe these processes.					
Recommended literature: 1. Kopčo N (2011) Výpočtová neuroveda (Úvod do modelovania neurofyziologických a behaviorálnych dát), Vydavateľ: Technická univerzita v Košiciach. 2. Hertz J, Krogh A and Palmer RG: Introduction to the theory of neural computation. Addison-Wesley 1991 3. Dayan P and LF Abbott: Theoretical Neuroscience - Computational and Mathematical Modeling of Neural Systems. MIT Press, 2001					
Course language: english or slovak					
Notes:					
Course assessment Total number of assessed students: 0					
A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0
Provides: doc. Ing. Norbert Kopčo, PhD., Ing. Peter Lokša					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

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: 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. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ UAD/10	Course name: Introduction to data analysis
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 1 / 1 Per study period: 14 / 14 Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 3.	
Course level: I.	
Prerequisites:	
Conditions for course completion: Test and individual project work. Oral presentation of the individual project work.	
Learning outcomes: To know the basic purpose of statistical data analysis, its methods and statistical thinking and understand its importance for science and practical life. To understand elementary statistical concepts. To gain experience in handling real data using spreadsheet Excel and statistical software R.	
Brief outline of the course: 1. Introduction (the basic philosophy and aim of statistical data analysis, descriptive and inductive statistics) 2. Collecting Data (types of data, random sample, randomized experiment) 3. Handling Data (visualization, summarizing – measures of center, measures of variability, skewness and kurtosis, relationships in data – introduction to regression and correlation) 4. Statistical inference (elementary view into estimation and testing hypothesis)	
Recommended literature: 1. Anděl, J.: Statistické metody, Matfyzpress, Praha, 1998 (in Czech) 2. Rossman, A.J. et al.: Workshop Statistics: Discovery with Data and Fathom, 3rd ed. Wiley, 2009 3. Utts, J.M.: Seeing Through Statistics, 4th ed., Thomson Brooks/Cole, Belmont, 2014 4. Utts, J.M., Heckard R.F.: Mind on Statistics, 5th ed. Thomson Brooks/Cole, Belmont, 2014 5. Zvára, K., Štěpán, J.: Pravděpodobnost a matematická statistika, Matfyzpress, Praha, 2001 (in Czech)	
Course language: Slovak	
Notes:	

Course assessment					
Total number of assessed students: 328					
A	B	C	D	E	FX
33.54	25.3	28.96	11.28	0.61	0.3
Provides: prof. RNDr. Ivan Žežula, CSc., RNDr. Martina Hančová, PhD.					
Date of last modification: 18.09.2020					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ UIB1/17		Course name: Introduction to information security			
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: 3.					
Course level: I., N					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 56					
A	B	C	D	E	FX
37.5	37.5	14.29	7.14	1.79	1.79
Provides: RNDr. JUDr. Pavol Sokol, PhD.					
Date of last modification: 27.03.2019					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ UDM/10	Course name: Introduction to mathematics
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 1 / 2 Per study period: 14 / 28 Course method: present	
Number of ECTS credits: 3	
Recommended semester/trimester of the course: 1.	
Course level: I.	
Prerequisites:	
Conditions for course completion: Two tests during the semester.	
Learning outcomes: Repetition of problematic sections of the secondary mathematics by interesting tasks.	
Brief outline of the course: Simplification of algebraic expressions. Real number, absolute value of real numbers; equations and inequalities. Irrational equations and inequalities. Concept of function. Linear and quadratic function; equations and inequalities. Exponential and logarithmic function; equations and inequalities. Goniometric functions; equations and inequalities. Complex numbers.	
Recommended literature: 1. V. Medek - L. Mišík - T. Šalát: REPETITÓRIUM STREDOŠKOLSKEJ MATEMATIKY, Alfa Bratislava, 1976 2. S. Richtárová - D. Kyselová: MATEMATIKA (pomôcka pre maturantov a uchádzačov o štúdium na vysokých školách), Enigma Nitra, 1998 3. O. Hudec – Z. Kimáková – E. Švidroňová: PRÍKLADY Z MATEMATIKY (pre uchádzačov o štúdium na TU v Košiciach), EF TU Košice, 1999 4. F. Peller – V. Šáner – J. Eliáš – Ľ. Pinda: MATEMATIKA – Podklady na prijímacie testy pre uchádzačov o štúdium, Ekonóm Bratislava, 2000/2001 5. F. Vesajda – F. Talafous: ZBIERKA ÚLOH Z MATEMATIKY pre stredné všeobecnovzdelávacie školy a gymnáziá, SPN Bratislava, 1973 6. J. Lukášová – O. Odvárko – B. Riečan – J. Šedivý – J. Vyšín: ÚLOHY Z MATEMATIKY pre 4. ročník gymnázia, SPN Bratislava, 1976	
Course language: Slovak	
Notes:	

Course assessment					
Total number of assessed students: 471					
A	B	C	D	E	FX
22.51	19.75	17.41	16.99	11.68	11.68
Provides: doc. RNDr. Matúš Harminc, CSc., RNDr. Zuzana Gönciová, RNDr. Lucia Janičková, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

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: 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. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ UNV1/15		Course name: Introduction to neurosciences			
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: I.					
Prerequisites:					
Conditions for course completion: Examination					
Learning outcomes: Introduction to anatomy and physiology of human brain, to cognitive processes corresponding to different mental functions, and to computational tools used in neuroscience.					
Brief outline of the course: Description of neural centers of basic cortical functions (visual, auditory, sensory and motor cortex, learning and memory). Basic physiological, psychological, psychophysical and computational methods used in neuroscience with focus on the application of computational tools for electrophysiological brain activity recording and imaging (e.g., magnetic resonance). Computational applications of neuroscience research.					
Recommended literature: 1. Gazzaniga M. (ed.): The New Cognitive Neurosciences. 2nd ed. MIT Press. 1999 2. Dayan P and LF Abbott: Theoretical Neuroscience - Computational and Mathematical Modeling of Neural Systems. MIT Press, 2001 3. Stillings et al.: Cognitive Science: An Introduction, 2nd ed., MIT Press, 1995					
Course language: Slovak or English					
Notes: Content prerequisites: Algebra, programming (Matlab).					
Course assessment Total number of assessed students: 29					
A	B	C	D	E	FX
17.24	24.14	20.69	24.14	10.34	3.45
Provides: doc. Ing. Norbert Kopčo, PhD., Ing. Peter Lokša					
Date of last modification: 10.02.2021					

Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ UIN1/15		Course name: Introduction to study 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: 1.					
Course level: I.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 284					
A	B	C	D	E	FX
43.31	17.25	13.38	8.45	3.17	14.44
Provides: prof. RNDr. Stanislav Krajčí, PhD., RNDr. Ondrej Krídlo, PhD., Mgr. Alexander Szabari, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ LCO/10		Course name: Linear and integer 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:					
Course level: I.					
Prerequisites: ÚMV/ALGa/10					
Conditions for course completion: Two tests, using software CASSIM, oral exam					
Learning outcomes: To learn the solving methods of linear programming					
Brief outline of the course: Formulation of linear and integer programs. Graphic solution. Simplex method, its variants and finiteness. Duality and its economic interpretation. Sensitivity analysis and parametric programming. Algorithms for integer programming.					
Recommended literature: Ch. Papadimitriou – K. Steiglitz: Combinatorial Optimization: Algorithms and Complexity, 1984 R.J. Vanderbei, Linear Programming: Foundations and Extensions (Kluwer 2001), electronic version: http://www.princeton.edu/~rvdb/LPbook/					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 128					
A	B	C	D	E	FX
21.88	16.41	20.31	22.66	18.75	0.0
Provides: doc. RNDr. Roman Soták, PhD., RNDr. Andrej Gajdoš, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ LTM/10		Course name: Logic and set theory			
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: 5.					
Course level: I., II.					
Prerequisites: ÚMV/MANb/19 and leboÚMV/FRPb/19					
Conditions for course completion: Exam					
Learning outcomes: To obtain a basic knowledge on the mathematical notion of an infinity. Analysis of the notion of a proof.					
Brief outline of the course: Set as a mathematical formularization of an infinity. Properties of the set of reals. Mathematical induction. Relations and mappings. Finite and countable sets. Cardinality of continuum. Elementary cardinal arithmetics. Sentential calculus, an axiomatization. Completeness Theorem. Methods of proofs. Language of predicate calculus, examples. Axiomatizations of predicate calculus and the notion of a proof. Methods of proofs in predicate calculus.					
Recommended literature: E. Mendelson, Introduction to Mathematical Logic, van Nostrand 1964.					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 226					
A	B	C	D	E	FX
10.62	18.14	20.35	15.93	32.74	2.21
Provides: doc. RNDr. Jaroslav Ivančo, CSc., RNDr. Jaroslav Šupina, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ MAE/10		Course name: Macroeconomics			
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: 5.					
Course level: I.					
Prerequisites:					
Conditions for course completion: Final mark is given based on the results of the tests written during the semester and oral exam, that evaluates the verbal argument about the studied models.					
Learning outcomes:					
Brief outline of the course: Basic macroeconomic notions: Gross domestic product, inflation, unemployment.. Analysis of goods markets. Financial markets. IS-LM model in closed economy. Open economy. IS-LM model in open economy. Models of labour market. Inflation and economic growth. High depth.					
Recommended literature: 1. Olivier Blanchard, Alessia Amighini, Francesco Giavazzi:MACROECONOMICS, A EUROPEAN PERSPECTIVE, Pearson Education, 2010 2. N.GREGORY MANKIW, MACROECONOMICS, 7th Edition, Harvard University, Worth Publishers 2009					
Course language: Slovak and English					
Notes:					
Course assessment Total number of assessed students: 80					
A	B	C	D	E	FX
25.0	13.75	21.25	21.25	12.5	6.25
Provides: prof. RNDr. Katarína Cechlárová, DrSc.					
Date of last modification: 31.01.2019					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ PMA/18	Course name: Math proseminar
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: 0	
Recommended semester/trimester of the course: 1.	
Course level: I.	
Prerequisites:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment	
Total number of assessed students: 0	
abs	n
0.0	0.0
Provides: RNDr. Igor Fabrici, Dr., RNDr. Lenka Halčinová, PhD.	
Date of last modification:	
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ MAN2c/10	Course name: Mathematical analysis III
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course: 3.	
Course level: I.	
Prerequisites: ÚMV/MANb/19	
Conditions for course completion: Two written test during semester and activity student to practice. Final evaluation is given by continuous assessment, written and oral part of the exam.	
Learning outcomes: The purpose of the course is to provide introductory knowledge in Riemann integral calculus of real functions of one real variable and series of real functions. To develop computational skills in the field and extend the student ability to use this theory in applications. To teach the basic knowledge of the subject mater in the syllabus and develop the ability to use this theory.	
Brief outline of the course: Definite Riemann integral - definition, elementary properties, calculation methods, applications. Improper Riemann integral. Sequences and series of real functions – pointwise and uniform convergence, properties of the limit function and the sum. Power series, Taylor series and their applications.	
Recommended literature: 1. O. Hutník: Určitý integrál, UPJŠ, Košice, 2012 (in Slovak). 2. Brannan, D.: A First Course in Mathematical Analysis, Cambridge University Press, Cambridge 2006. 3. Bruckner, A. M. - Bruckner J. B. - Thomson, B. S.: Real Analysis, Second Edition, ClassicalRealAnalysis.com, 2008. 4. Zorich, V. A.: Mathematical Analysis I, Springer-Verlag 2002.	
Course language: Slovak	
Notes:	

Course assessment					
Total number of assessed students: 187					
A	B	C	D	E	FX
12.3	13.37	14.44	17.11	35.29	7.49
Provides: doc. RNDr. Ondrej Hutník, PhD., RNDr. Zuzana Ontkovičová					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ MAN1d/10		Course name: Mathematical analysis IV			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 4 / 2 Per study period: 56 / 28 Course method: present					
Number of ECTS credits: 7					
Recommended semester/trimester of the course:					
Course level: I.					
Prerequisites: ÚMV/MAN1c/10 and lebo ÚMV/MAN2c/10					
Conditions for course completion: exam					
Learning outcomes: Understanding of the basic rigorous ideas of Mathematical Analysis.					
Brief outline of the course: Metric spaces. Complete, compact and connected sets. Rings sigma-rings. Measure. Outer measure. Lebesgue measure. Measurable sets. Measurable functions. Lebesgue integral. Lebesgue integral versus Riemann integral. Calculations of Lebesgue integrals. Applications.					
Recommended literature: B. S. Thomson, J. B. Bruckner, A. M. Bruckner: Elementary Real Analysis, Prentice Hall, 2001. A. M. Bruckner, J. B. Bruckner, B. S. Thomson: Real Analysis, Prentice Hall, 1997. T. Neubrunn, B. Riečan: Miera a integrál, Veda, Bratislava, 1981. B. Riečan, T. Neubrunn: Teória miery, Veda, Bratislava, 1992. G. S. Nelson, A User-Friendly Introduction to Lebesgue Measure and Integration, American Mathematical Society, 2015					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 91					
A	B	C	D	E	FX
1.1	5.49	15.38	16.48	59.34	2.2
Provides: prof. RNDr. Jozef Doboš, CSc.					
Date of last modification: 04.03.2019					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ MAN2d/10	Course name: Mathematical analysis IV
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: 4.	
Course level: I.	
Prerequisites: ÚMV/MANb/19	
Conditions for course completion: Continuous assessment is taken the form of small tests and two main tests during the semester. Final evaluation is given by continuous assessment (40%), written and oral part of the exam (60%).	
Learning outcomes: To teach the basic knowledge of the subject matter in the syllabus and develop the ability to use this theory. The students also learn mathematical culture, notation and mathematical way of thinking and expression.	
Brief outline of the course: 1. Metric space - Euclidean space, topological properties of points and sets in metric space. 2. Function of several real variables - basic concepts, limits and continuity. 3. Differential calculus of functions of several real variables - partial derivative, differentiability and total differential (also higher order), Taylor polynomials, directional derivative, local and global extrema, constrained local extrema. 4. Double (two dimensional) integral - definition, calculation methods, applications.	
Recommended literature: 1. L. Kluvánek, I. Mišík, M. Švec: Matematika I, II, SVTL, Bratislava, 1959 (in Slovak). 2. Z. Došlá, O. Došlý: Diferenciální počet funkcí více proměnných, vysokoškolský učebný text, Masarykova univerzita v Brne, Brno, 2003 (in Czech). 3. R. E. Williamson, H. F. Trotter: Multivariable mathematics, Prentice Hall (Pearson), Upper Saddle River, 2004. 4. B. S. Thomson, J. B. Bruckner, A. M. Bruckner: Elementary real analysis, Prentice Hall (Pearson), Lexington, 2008. 5. J. Stewart: Calculus: Early transcendentals, Brooks Cole (Thomson), Toronto, 2008. 6. P. Pták: Calculus II (A course for engineers), ČVUT v Prahe, Praha, 1997. 7. J. Eliaš, J. Horváth, J. Kajan: Zbierka úloh z vyššej matematiky 3, 4, SVTL, Bratislava, 1966 (in Slovak).	
Course language: Slovak	
Notes:	

Course assessment					
Total number of assessed students: 43					
A	B	C	D	E	FX
25.58	16.28	23.26	13.95	18.6	2.33
Provides: RNDr. Lenka Halčinová, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ MANb/19		Course name: Mathematical analysis of function of real variable			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 4 / 3 Per study period: 56 / 42 Course method: present					
Number of ECTS credits: 8					
Recommended semester/trimester of the course: 2.					
Course level: I.					
Prerequisites: ÚMV/FRPa/19					
Conditions for course completion: Two written test during semester and activity student to practice. Final evaluation is given by continuous assessment, written and oral part of the exam.					
Learning outcomes: The purpose of the course is to strengthen the knowledge in differential and integral calculus of real functions of one real variable and to develop computational skills in the field.					
Brief outline of the course: Limit and continuity of real functions, elementary functions. Differential calculus - derivatives of the first and of higher orders, the basic theorems of differential calculus and their use to study properties and behavior of functions.					
Recommended literature: 1. Brannan, D.: A First Course in Mathematical Analysis, Cambridge University Press, Cambridge 2006. 2. Bruckner, A. M., Bruckner J. B., Thomson, B. S.: Real Analysis, Second Edition, ClassicalRealAnalysis.com, 2008. 3. Zorich, V. A.: Mathematical Analysis I, Springer-Verlag 2002.					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 267					
A	B	C	D	E	FX
10.11	10.86	15.36	23.6	34.83	5.24
Provides: doc. RNDr. Ondrej Hutník, PhD., RNDr. Lenka Halčinová, PhD., Mgr. Katarína Lučivjanská, PhD.					
Date of last modification: 17.02.2021					

Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ MRUa/15		Course name: Mathematical problem solving strategies I			
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course: 4.					
Course level: I.					
Prerequisites:					
Conditions for course completion: Evaluation will be awarded on the basis of continuous assessment and final test.					
Learning outcomes: To acquaint students with problems and strategies for the solutions of the problems at the primary and secondary school, and with the specific problems of teaching mathematics at primary and secondary school.					
Brief outline of the course: Basic knowledge of school mathematics, different strategy of problem solution, problems from mathematical competitions concerning Equations and inequalities and their systems, Functions, Financial Mathematics.					
Recommended literature: [1] Hejný, M. a kol., Teória vyučovania matematiky 2. SPN, Bratislava 1989 (in Slovak) [2] Kopka, J., Hrozny problémů ve školské matematice, Univerzita J. E. Purkyně, Ústí nad Labem 1999 (in Czech) [3] Učebnice a zbierky úloh z matematiky ZŠ a SŠ (in Slovak)					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 172					
A	B	C	D	E	FX
32.56	21.51	22.67	11.05	11.05	1.16
Provides: doc. RNDr. Stanislav Lukáč, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/MRUB/15		Course name: Mathematical problem solving strategies II			
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course: 5.					
Course level: I.					
Prerequisites: ÚMV/MRUa/15					
Conditions for course completion: The award is based on the results of written checks carried out during the semester. The resulting trial is granted on the basis of continuous assessment and seminar work.					
Learning outcomes: To acquaint students with problems and strategies for the solutions of the problems at the primary and secondary school, and with the specific problems of teaching mathematics at primary and secondary school.					
Brief outline of the course: Basic knowledge of school mathematics, various methods for the task, the role of mathematical competitions for thematic units Planimetry, stereometry, goniometry.					
Recommended literature: [1] Hejný, M. a kol., Teória vyučovania matematiky 2. SPN, Bratislava 1989 (in Slovak) [2] Kopka, J., Hrozny problémů ve školské matematice, Univerzita J. E. Purkyně, Ústí nad Labem 1999 (in Czech) [3] Jonson-Wilder.S., Mason.J.: Developing thinking in Geometry, Sage, 2009 [4] Učebnice a zbierky úloh z matematiky ZŠ a SŠ					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 152					
A	B	C	D	E	FX
31.58	30.26	24.34	9.21	4.61	0.0
Provides: doc. RNDr. Dušan Šveda, CSc.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ MRUc/15		Course name: Mathematical problem solving strategies III			
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course: 6.					
Course level: I.					
Prerequisites: ÚMV/MRUb/15					
Conditions for course completion: During the semester will be 3 written exams. Evaluation A - at least 90% of the points, evaluation B - at least 80%, evaluation C at least 70%, evaluation D at least 60%, evaluation E rating of at least 50% of the points. Credits shall not be granted to a student who receives less than 50% of the points.					
Learning outcomes: Students become familiar with the tasks, methods of problem solving, solving strategies and with specific problems of teaching mathematics at primary and secondary schools to topics combinatorics, probability and statistics.					
Brief outline of the course: Basic knowledge of school mathematics, from the topics: combinatorics, probability and statistics.					
Recommended literature: Hecht, T., Sklenáriková, Z., Metódy riešenia matematických úloh, Bratislava, SPN, 1992. (in slovak) Hecht, T. a kol., Matematika pre 1.-4. ročník gymnázií a SOŠ, OrbisPictusIstropolitana, Bratislava 1999-2002. (in slovak) Krantz, S.G., Techniques of Problem Solving, AMS, 1997. Larson, L.C., Metódy riešenia matematických problémov, Bratislava, Alfa, 1990. (in slovak)					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 143					
A	B	C	D	E	FX
30.77	30.77	21.68	10.49	6.29	0.0
Provides: RNDr. Ingrid Semanišinová, PhD.					
Date of last modification: 03.05.2015					

Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ MST/19		Course name: Mathematical statistics			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present					
Number of ECTS credits: 5					
Recommended semester/trimester of the course:					
Course level: I., II.					
Prerequisites:					
Conditions for course completion: To obtain at least 50% in two written tests during the semester. Total evaluation based on written tests and oral exam.					
Learning outcomes: Student should obtain the knowledge about basic statistical methods and the ability to apply theoretical knowledge in practical problems solving.					
Brief outline of the course: Random vectors, their distributions and characteristics. Joint and marginal distributions. Correlation and regression, properties of correlation coefficient. Random sample, sampling distributions and characteristics. Some important statistics and their distributions. Point estimators and their properties. Maximum likelihood method. Interval estimates, confidence interval construction. Testing of statistical hypothesis, critical region, level of significance. Methods for searching optimal critical regions. Some important parametric and nonparametric tests.					
Recommended literature: 1. Skřivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2006 (in Slovak) 2. Skřivánková V.-Hančová M.: Štatistika v príkladoch, UPJŠ, Košice, 2005 (in Slovak) 3. CASELLA, G., BERGER, R., Statistical Inference, 2nd ed., Duxbury Press, 2002 4. DeGroot, M. H., Schervish, M. J.: Probability and Statistics, 4th ed., Pearson, Boston, 2012 5. Utts, J.M., Heckard, R.F.: Mind od Statistics, 5th ed., Thomson Brooks/Cole, 2014 6. Anděl J.: Základy matematické statistiky, MatfyzPress, Praha, 2011 (in Czech)					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 124					
A	B	C	D	E	FX
20.97	21.77	15.32	21.77	12.9	7.26

Provides: prof. RNDr. Ivan Žežula, CSc., RNDr. Martina Hančová, PhD.
Date of last modification: 18.03.2019
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ MTM/14		Course name: Mathematics			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present					
Number of ECTS credits: 1					
Recommended semester/trimester of the course:					
Course level: I.					
Prerequisites: ÚMV/MAN2c/10, ÚMV/ALG2b/10, ÚMV/ATC/10					
Conditions for course completion: Acquiring the required number of credits in the structure defined by the study plan.					
Learning outcomes: Evaluation of student's competences with respect to the profile of the graduate.					
Brief outline of the course:					
Recommended literature:					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 59					
A	B	C	D	E	FX
28.81	16.95	23.73	20.34	10.17	0.0
Provides:					
Date of last modification: 21.05.2016					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ RIM1/15		Course name: Metódy riešenia infromatických úloh			
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: I.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 57					
A	B	C	D	E	FX
22.81	33.33	24.56	3.51	7.02	8.77
Provides: RNDr. Rastislav Krivoš-Belluš, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ MIE/13		Course name: Microeconomics			
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: 5.					
Course level: I.					
Prerequisites:					
Conditions for course completion: The minimum necessary number of points from tests written during semester is 50%, plus the ability of verbal argumentation in the final oral exam.					
Learning outcomes: Understanding of basic principles of microeconomics and ability to apply them in practical situations.					
Brief outline of the course: Economics and economy. Supply and demand. Consumer Theory. Theory of firm. Perfect competition. Monopoly. Labour market. Market failure. Externalities and Public goods.					
Recommended literature: 1. http://umv.science.upjs.sk/cechlarova/MIE/MIE.htm - podklady k prednáška, testy na cvičenia, materiály z dennej tlače 2. H.L. Varian, Intermediate Mikroekonomics, WW Norton, 1993 3. J.M. Perloff, Microeconomics, 6th Edtion, Addison Wesley, 2012 4. J. Sloman, Economics, 6th Edition, Prentice Hall, 2006					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 79					
A	B	C	D	E	FX
22.78	24.05	17.72	18.99	13.92	2.53
Provides: prof. RNDr. Katarína Cechlárová, DrSc., RNDr. Veronika Jurková, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: KPE/ MMKV/17		Course name: Multiculturalism and Multicultural Education			
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course: 4.					
Course level: I.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 82					
A	B	C	D	E	FX
51.22	24.39	21.95	1.22	1.22	0.0
Provides: PaedDr. Janka Ferencová, PhD.					
Date of last modification: 12.02.2021					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ TCS/10		Course name: Number theory			
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: 5.					
Course level: I.					
Prerequisites: ÚMV/ATC/10					
Conditions for course completion: According to tests and exam.					
Learning outcomes: To obtain knowledge on quadratic congruences.					
Brief outline of the course: Chinese remainder theorem, Euler function, quadratic congruences, Pythagorean equation.					
Recommended literature: M. B. Nathanson: Elementary Methods in Number Theory. Springer, 2000. H. E. Rose: A Course in Number Theory. Clarendon Press, Oxford, 1994.					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 104					
A	B	C	D	E	FX
34.62	26.92	22.12	14.42	1.92	0.0
Provides: doc. RNDr. Matúš Harminc, CSc.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ OSY1/15	Course name: Operating systems
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: 3.	
Course level: I.	
Prerequisites: ÚINF/PRP2/15,(ÚINF/PAZ1a/15 and leboÚINF/ePAZ1a/15 and leboÚINF/PRG1/15)	
Conditions for course completion: Test and oral exam	
Learning outcomes: To gain knowledge about the basic architecture of the operating system. Understand algorithms for multi-process CPU allocation, interprocess communication, and memory allocation. To be able to apply basic synchronization procedures and to solve problems of allocation of common resources for I / O operations. Understand the organization of files and their protection by access rights. To be able to practically use the services of the Unix and Windows operating system.	
Brief outline of the course: Operating system structure and basic functions. Different kinds of operating systems and their history. Multiprogramming, context switching, interrupts, time sharing, interoperability. Processes, process management, threads, scheduling, interprocess communication (race condition, mutual exclusion, deadlock, starvation). Memory management, relocation, segmentation, paging, virtual memory. I/O management, device drivers, interrupt handlers. External memory (disk) - direct and sequential access. File systems, file operations, directories, access control, access rights.	
Recommended literature: 1. A. Silberschatz, G. Gagne, P. Baer: Operating System Concepts, Wiley, 2002 2. A. S. Tanenbaum: Modern Operating Systems, Prentice-Hall, 2001	
Course language:	
Notes:	

Course assessment					
Total number of assessed students: 304					
A	B	C	D	E	FX
22.37	21.71	19.08	25.0	10.53	1.32
Provides: RNDr. PhDr. Peter Pisarčík					
Date of last modification: 14.01.2020					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: KPE/ Pg/15		Course name: Pedagogy			
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course: 3., 5.					
Course level: I.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 638					
A	B	C	D	E	FX
20.06	27.12	26.02	15.67	10.34	0.78
Provides: Mgr. Katarína Petříková, PhD.					
Date of last modification: 12.02.2021					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/PP/15	Course name: Positive Psychology
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 4., 6.	
Course level: I.	
Prerequisites:	
Conditions for course completion: Assessment is based on interim evaluation.	
Learning outcomes: The aim of the course is to learn about the the basic theory and current research, as well as the possibility of application of Positive Psychology as a new and rapidly developing field of psychology. The aim of the subject is mainly to develop and apply critical thinking to the challenges and issues that Positive Psychology brings and raises in the context of the individual in contemporary society. Emphasis is placed on the ability to independently and critically process current topics of positive psychology.	
Brief outline of the course: 1. Different perspectives on well-being nad happiness in psychology 2. Main theoretical approaches to positive psychology 3. Positive emotions and positivity 4. Meaningfulness 5. Positive interpersonal relations 6. Post-traumatic growth 7. Hope and optimism 8. Gratitude 9. Spirituality as a personality dimension 10. Wisdom 11. Positive institutions 12. New themes and topics in PP	
Recommended literature: Brewer, M. B, Hwestone, M: Emotion and Motivation, Blackwell, 2004 Deci, E., Ryan R. M., Handbook of Self – Determination Reasearch, Rochester, 2002 Křivohlavý, J.: Pozitivní psychologie. Praha, Portál, 2003 Křivohlavý, J.: Psychologie vděčnosti a nevďčnosti. Praha, Grada, 2007 Křivohlavý, J.: Psychologie moudrosti a dobrého života, Praha, Grada, 2012 Křivohlavý, J.: Psychologie pocitu štěstí, Grada, 2013 McAdams, D. P., The Person, New York, 2002	

Seligman, M. E. P., & Csikszentmihalyi, M. (Eds.). (2000). Positive psychology [Special issue] *American Psychologist*, 55(1).
Říčan, P.: Psychologie náboženství a spirituality, Praha, Portál, 2007
Slezáčková, A.: Průvodce pozitivní psychologií, Praha, Grada, 2012

Course language:

Notes:

Course assessment

Total number of assessed students: 222

A	B	C	D	E	FX
98.2	0.9	0.45	0.0	0.45	0.0

Provides: Mgr. Jozef Benka, PhD. et PhD.

Date of last modification: 18.02.2021

Approved: doc. RNDr. Ondřej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ PRP2/15	Course name: Principles of computers
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: I.	
Prerequisites:	
Conditions for course completion:	
Learning outcomes: - Know brief history of computer, classification and construction principles of computers of von Neumann type. - Understand relation between real numbers, integers and their binary representation as well as be able to perform basic arithmetic and logic operations over binary represented numbers. - Learn basics about logic gates, combination and sequence circuits and their structure. Understand principles of how basic circuits realize arithmetic-logic unit and other parts of computers e.g. memory. - Know principles of communication of processor and other devices via interruptions and direct memory access. - Get idea of device drivers, device controllers and their functionality.	
Brief outline of the course: Brief outline of the course: - computers of von Neumann type, - history of computers, - binary encoding of real numbers and integers, - realization of computers parts by sequence and combination circuits, - principles of various memory cells and memory matrices, - types of memories, - architecture of processor on levels of digital logic, machine cycle, instruction cycle, - input and output devices, - principles of interruptions, - direct memory access, - device drivers, - device controllers, - peripheral devices.	
Recommended literature: 1. W. Stallings: Computer Organization and Architecture, Prentice Hall, 2002	

Course language:					
Notes:					
Course assessment					
Total number of assessed students: 222					
A	B	C	D	E	FX
26.58	14.41	15.77	13.06	24.32	5.86
Provides: RNDr. Juraj Šebej, PhD.					
Date of last modification: 13.01.2020					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ PBS/15	Course name: Pro-seminar to bachelor thesis
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 1 Per study period: 14 Course method: present	
Number of ECTS credits: 1	
Recommended semester/trimester of the course: 4.	
Course level: I.	
Prerequisites:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment	
Total number of assessed students: 289	
abs	n
93.77	6.23
Provides: RNDr. Ľubomír Antoni, PhD.	
Date of last modification: 26.01.2021	
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ TPP/19		Course name: Probability theory			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present					
Number of ECTS credits: 5					
Recommended semester/trimester of the course: 4.					
Course level: I.					
Prerequisites: ÚMV/MAN1c/10 and lebo ÚMV/MAN2c/10 and lebo ÚMV/FRPa/19					
Conditions for course completion: To obtain at least 50% in two written tests during the semester. Total evaluation based on written tests and oral exam.					
Learning outcomes: To obtain knowledge of the axiomatic theory of probability, random variables and their characteristics, special types of distributions and their applications.					
Brief outline of the course: Probability space, definitions and properties of probability. Conditional probability and independence. Random variables, their distribution function and characteristics. Mean, variance and skewness.. Discrete and absolutely continuous distributions. Quantile and characteristic functions, their properties. Relation between characteristic function and moments. Median and mode. Transformation of random variables. Special types of distributions with applications (binomial, Poisson, geometric, uniform, exponential, normal, chí-square, Student, Fisher). Central limit theorem.					
Recommended literature: 1. Skřivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2006 (in Slovak) 2. DeGroot, M. H., Schervish, M. J.: Probability and Statistics, 4th ed., Pearson, Boston, 2012 3. Evans, M. J., Rosenthal, J. S.: Probability and Statistics: The Science of Uncertainty, 2nd Ed., W. H. Freeman, 2009 4. Riečan et al.: Pravdepodobnosť a matematická štatistika, Alfa, Bratislava, 1984 (in Slovak)					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 281					
A	B	C	D	E	FX
11.03	13.17	20.28	24.56	21.71	9.25

Provides: prof. RNDr. Ivan Žežula, CSc., RNDr. Daniel Klein, PhD.
Date of last modification: 11.03.2019
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/SPP1a/15		Course name: Programming environments in schools I			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present					
Number of ECTS credits: 4					
Recommended semester/trimester of the course: 3.					
Course level: I.					
Prerequisites: ÚINF/PAZ1a/15					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 23					
A	B	C	D	E	FX
8.7	21.74	43.48	8.7	13.04	4.35
Provides: doc. RNDr. Ľubomír Šnajder, PhD., PaedDr. Ján Guniš, PhD.					
Date of last modification: 02.03.2020					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/SPP1b/15		Course name: Programming environments in schools II			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present					
Number of ECTS credits: 4					
Recommended semester/trimester of the course: 6.					
Course level: I.					
Prerequisites: ÚINF/SPP1a/15					
Conditions for course completion: Creation of educational software in selected educational programming environment.					
Learning outcomes: 1. To get an overview of children's programming environments. 2. To acquire programming skills in selected children's programming environments. 3. Ability to design and program educational software in educational programming environments.					
Brief outline of the course: Teaching of algorithms and programming in elementary school - the objectives, content, textbooks and methodological materials. Algorithmic computer games. Overview of children's programming environments. Programming in environments - Scratch, App Inventor, MakeCode, MicroPython. Development of educational software.					
Recommended literature: BELL, Charles A., 2017. Micropython for the internet of things: a beginner's guide to programming with Python on microcontrollers. New York, NY: Springer Science+Business Media. ISBN 9781484231227. WOLBER, David, 2014. App inventor. Brno: Computer Press. ISBN 978-80-251-4195-3. Programování pro děti: naučte se programovat při tvorbě skvělých her, 2013. Brno: Computer Press. ISBN 978-80-251-3809-0.					
Course language: Slovak or english					
Notes:					
Course assessment Total number of assessed students: 17					
A	B	C	D	E	FX
23.53	23.53	11.76	23.53	5.88	11.76
Provides: doc. RNDr. Ľubomír Šnajder, PhD.					
Date of last modification: 10.02.2021					

Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ PRS/15	Course name: Programming of robotic kits
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 3 Per study period: 42 Course method: present	
Number of ECTS credits: 3	
Recommended semester/trimester of the course: 3.	
Course level: I.	
Prerequisites:	
Conditions for course completion: Assessment of individual work on computers for a number of sub-assignments - robotic mini-project. Creating and presenting a programmed robotic model including documentation.	
Learning outcomes: 1. To acquire an overview of robotic sets and robotic programming environments. 2. To acquire skills in constructing and programming robots in selected robotic programming environments.	
Brief outline of the course: Robotic set (Lego Mindstorms) - components, engines, sensors, basics of constructing of the mechanical parts of the model. Programming robotic models in languages NXT-G and NXC - branching statements, loops, blocks, events, parallel processes that work with sensors, datalogging, communication between several NXT bricks. Creating mini-project (eg, traffic lights, parking, dance creations, guitar, smart thermometer, measuring distance). Robotic competition, ideas for demanding projects. Creation and presentation of the final project - a programmed robot model (eg, navigate a maze, sports, paramedic) including documentation.	
Recommended literature: 1. BUMGARDNER, J. (2007) The Origins of Mindstorms. Wired, 2007. http://www.wired.com/geekdad/2007/03/the_origins_of_/ 2. Carnegie Mellon. Robotics Academy. http://www.education.rec.ri.cmu.edu/ 3. KABÁTOVÁ, M. a kol. (2010) Ďalšie vzdelávanie učiteľov základných škôl a stredných škôl v predmete informatika: Didaktika robotických stavebníc. Bratislava : ŠPÚ, 2010. ISBN 978-80-8118-070-5 4. JAKEŠ, T. (2014) LEGO MINDSTORMS NXT - Robotické vzdelávaní, ZČU v Plzni, 2014. https://lego.zcu.cz/web/	
Course language:	
Notes:	

Course assessment					
Total number of assessed students: 49					
A	B	C	D	E	FX
53.06	22.45	12.24	2.04	0.0	10.2
Provides: RNDr. Zuzana Bednárová, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ PSW1/06	Course name: Programming of web-pages
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 4.	
Course level: I.	
Prerequisites: (ÚINF/DBS1a/15 and leboÚINF/DBS/15),ÚINF/PAZ1a/15	
Conditions for course completion:	
Learning outcomes: Acquire overview about modern technologies to make dynamic web pages. Be able to make web pages with cascading styles according to W3C standards. Use technologies on server side (PHP) and on client side (JavaScript). Understand relational databases (MySQL). Understand web applications security risks and know how to eliminate them.	
Brief outline of the course: Principle of making web pages. HTML language, W3C standards. Optimization of work, cascading styles. Tools for creating the web. Programming in JavaScript. Simple scripts for dynamic web pages. Programming on server side, script language PHP. Application based on PHP. Work with MySQL database. Conjunction of used technologies. Selected problems resolvable by technologies on server side and on client side.	
Recommended literature: GILMORE, W. Jason. Beginning PHP and MySQL: from novice to professional. 4th ed. New York: Apress, 2010. ISBN 978-143-0231-141. KOSEK, Jiří. PHP - tvorba interaktivních internetových aplikací: podrobný průvodce. Vyd. 1. Praha: Grada, 1999, 490 s. Průvodce (Grada). ISBN 80-716-9373-1. SUEHRING, Steve a Janet VALADE. <i>PHP, MySQL, JavaScript</i>. Vyd. 1. Brno: Computer Press, 2006, xxiv, 692 pages. --For dummies. ISBN 978-1-118-21370-4. HUSEBY, Sverre H. Zranitelný kód. Brno: Computer Press, 2006, 207 s. ISBN 80-251-1180-6. THE OWASP FOUNDATION. OWASP [online]. 2014 [cit. 2014-02-26]. Dostupné z: https://www.owasp.org/index.php/Main_Page	
Course language: slovak	
Notes:	

Course assessment			
Total number of assessed students: 12			
abs	n	neabs	z
66.67	33.33	0.0	0.0
Provides: PaedDr. Ján Guniš, PhD.			
Date of last modification: 27.03.2020			
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.			

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ PAZ1a/15	Course name: Programming, algorithms, and complexity
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 4 Per study period: 42 / 56 Course method: present	
Number of ECTS credits: 8	
Recommended semester/trimester of the course: 1.	
Course level: I., II.	
Prerequisites:	
Conditions for course completion: Get a prescribed minimum number of points for activities of continuous assessment and for solving tasks during final practical test.	
Learning outcomes:	
Brief outline of the course: First part of the course (with turtle graphics): New Eclipse project, interactive communication with objects, simple turtle graphics, making user methods, local variables, variable types, arithmetic and logical expressions, random numbers, conditions, loops for and while, debugging, references, chars, Strings, arrays, instance variables, mouse events, simple array algorithms. Second part of the course (without turtle graphics): Exceptions, using try-catch-finally block, files and directories, conversion from string variables, encapsulation, constructors with parameters, constructors hierarchy, getters and setters, interfaces, inheritance and polymorphism, abstract classes and methods, packages, visibility modifiers, sorting using Arrays.sort() and interfaces Comparable and Comparator, Java Collections Framework: autoboxing, interface List, ArrayList, LinkedList, interface Set and class HashSet, methods equals() and hashCode(), for-each loop, interface Map and class HashMap, custom Exceptions, rethrowing exceptions, exceptions' inheritance, Runtime exceptions, Errors, static variables and methods.	
Recommended literature: 1. ECKEL, B.: Thinking in Java, Pearson, 2006, ISBN: 978-01-318-7248-6 2. PECINOVSKÝ, R.: OOP - Naučte se myslet a programovat objektově, Computer Press, a.s., Brno, 2010, ISBN: 978-80-251-2126-9 3. SIERRA, K., BATES, B. Head First Java, O'Reilly Media; 2nd edition, 2005, ISBN: 978-05-960-0920-5	
Course language: Slovak language, english language is required only to read Java API documentation.	
Notes:	

Course assessment					
Total number of assessed students: 717					
A	B	C	D	E	FX
16.18	7.39	11.44	15.48	15.06	34.45
Provides: RNDr. Juraj Šebej, PhD., RNDr. Zuzana Bednárová, PhD., RNDr. Miroslav Opiela, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ PAZ1b/15	Course name: Programming, algorithms, and complexity
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 4 Per study period: 28 / 56 Course method: present	
Number of ECTS credits: 7	
Recommended semester/trimester of the course: 2.	
Course level: I., II.	
Prerequisites: ÚINF/PAZ1a/15	
Conditions for course completion: Get a given minimum number of points for activities of continuous assessment and for solving tasks during final practical test. The final practical test focuses on application of known algorithms and techniques of efficient algorithm design.	
Learning outcomes:	
Brief outline of the course: Recursion and its applications, fractals. Binary search and simple sorting algorithm with quadratic time complexity. Time and space complexity of algorithms, analysis of time complexity, O-notation. Basic data structures and their applications: linked list, stack, and queue. Hierarchical data and their representation, trees, tree traversals, binary search trees. Arithmetic expressions, evaluation of an arithmetic expression. Efficient sorting algorithm: QuickSort, MergeSort, and HeapSort. Backtrack. Techniques “divide and conquer” and dynamic programming as methods for design of efficient algorithms. Basic graph algorithms for unweighted graphs (Breadth-first search, Depth-first search, graph connectivity, graph components, graph bridges, topological sort) and for weighted graphs (shortest paths: Bellman-Ford algorithm, Dijkstra algorithm, Floyd-Warshall algorithm; minimum spanning tree: Prim algorithm, Kruskal algorithm). String algorithms. Greedy algorithms.	
Recommended literature: WRÓBLEWSKI, P.: Algoritmy, datové struktury a programovací techniky. Computer Press, Brno, 2004 CORMEN, T.H., LEISERSON, Ch.E., RIVEST, R.L, STEIN, C. Introduction to Algorithms. The MIT Press, 2009. KLEINBERG, J., TARDOS, E.: Algorithm Design, Cornell University, Addison Wesley, New York, 2006.	
Course language: Slovak language, literature is available in english and czech language.	
Notes:	

Course assessment					
Total number of assessed students: 1191					
A	B	C	D	E	FX
13.1	7.14	9.82	19.4	21.91	28.63
Provides: RNDr. Zuzana Bednárová, PhD., RNDr. Juraj Šebej, PhD., RNDr. Miroslav Opiela, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: KPPaPZ/Ps/15		Course name: Psychology			
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course: 1., 3., 5.					
Course level: I.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 516					
A	B	C	D	E	FX
22.87	16.09	21.71	18.6	17.83	2.91
Provides: PhDr. Anna Janovská, PhD., Mgr. Jozef Benka, PhD. et PhD.					
Date of last modification: 10.02.2021					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: KPPaPZ/PKŽ/15		Course name: Psychology of Everyday Life			
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course: 3.					
Course level: I.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 164					
A	B	C	D	E	FX
51.22	14.02	25.61	6.71	1.83	0.61
Provides: Mgr. Ondrej Kalina, PhD.					
Date of last modification: 10.02.2021					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: KPE/ OLŠ/15		Course name: School Administration and Legislation			
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., 5.					
Course level: I.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 234					
A	B	C	D	E	FX
44.44	26.92	17.09	7.69	2.99	0.85
Provides: PaedDr. Renáta Orosová, PhD.					
Date of last modification: 12.02.2021					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚTVŠ/ ÚTVŠ/CM/13	Course name: Seaside Aerobic Exercise
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: Per study period: 36s Course method: combined, present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: I., II.	
Prerequisites:	
Conditions for course completion: Conditions for course completion: Attendance	
Learning outcomes: Learning outcomes: Students will be provided an overview of possibilities how to spend leisure time in seaside conditions actively and their skills in work and communication with clients will be improved. Students will acquire practical experience in organising the cultural and art-oriented events, with the aim to improve the stay and to create positive experiences for visitors.	
Brief outline of the course: Brief outline of the course: 1. Basics of seaside aerobics 2. Morning exercises 3. Pilates and its application in seaside conditions 4. Exercises for the spine 5. Yoga basics 6. Sport as a part of leisure time 7. Application of projects of productive spending of leisure time for different age and social groups (children, young people, elderly) 8. Application of seaside cultural and art-oriented activities in leisure time	
Recommended literature:	
Course language:	
Notes:	
Course assessment	
Total number of assessed students: 41	
abs	n
12.2	87.8

Provides: Mgr. Agata Horbacz, PhD.
Date of last modification: 15.03.2019
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: KF/ VKFV/07		Course name: Selected Topics in Philosophy of Education (General Introduction)			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course: 3., 5.					
Course level: I.					
Prerequisites: KF/DF1/05					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 0					
A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0
Provides: doc. PhDr. Pavol Tholt, PhD., mim. prof.					
Date of last modification:					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ VKA/10		Course name: Selected topics in algebra			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 1 Per study period: 28 / 14 Course method: present					
Number of ECTS credits: 4					
Recommended semester/trimester of the course: 6.					
Course level: I.					
Prerequisites:					
Conditions for course completion: According to tests and to the exam.					
Learning outcomes: To obtain basic knowledge on universal algebra; to be able to apply the theory in concrete situations.					
Brief outline of the course: Relations, operations, algebraic structures. Substructures. Congruences, homomorphism theorems. Automorphism groups and endomorphism monoids. Terms, term operations, identities, varieties.					
Recommended literature: B. Jónsson: Topics in Universal Algebra, Springer-Verlag 1972 M. Kolibiar a kol.: Algebra a príbuzné disciplíny, Bratislava 1992					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 55					
A	B	C	D	E	FX
12.73	23.64	25.45	21.82	14.55	1.82
Provides: prof. RNDr. Danica Studenovská, CSc.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ VEM/10		Course name: Selected topics in elementary mathematics			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 1 / 1 Per study period: 14 / 14 Course method: present					
Number of ECTS credits: 3					
Recommended semester/trimester of the course: 5.					
Course level: I.					
Prerequisites: ÚMV/MAN2c/10					
Conditions for course completion: exam					
Learning outcomes: Obtain knowledge about the structure of elementary mathematics with respect to advanced mathematics; the development of mathematical skills of prospective teachers.					
Brief outline of the course: Language of Mathematics; syntax and semantics; sets, relations, rational and irrational numbers, equations and inequations in reals; elementary functions					
Recommended literature: W.W. Esty: The Language of Mathematics, Montana State University, 2007. F. Klein: Elementary mathematics from an advanced standpoint, Dower Publications, 1945.					
Course language: Slovak					
Notes:					
Course assessment Total number of assessed students: 42					
A	B	C	D	E	FX
4.76	26.19	14.29	28.57	26.19	0.0
Provides: prof. RNDr. Jozef Doboš, CSc.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ VKI/15		Course name: Selected topics in informatics and information technologies			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present					
Number of ECTS credits: 4					
Recommended semester/trimester of the course: 1.					
Course level: I.					
Prerequisites:					
Conditions for course completion: Problems solved during the semester. Examination.					
Learning outcomes: To be able to program on primitive theoretical computers RAM and RASP. To be able to evaluate programs by the number of operations and of used cells.					
Brief outline of the course: To study theoretical models the computers RAM and RASP with respect to algorithms and their complexity. Solving problems by means the virtual computer RASP. To determine time and space complexity of the devised programs.					
Recommended literature: Aho A.V., Hopcroft J.E., Ullman J.D.: The design and analysis of algorithms. Addison-Wesley Publishing Company, 1974.					
Course language: slovak or english					
Notes:					
Course assessment Total number of assessed students: 60					
A	B	C	D	E	FX
26.67	28.33	23.33	3.33	10.0	8.33
Provides: RNDr. Zuzana Bednárová, PhD.					
Date of last modification: 10.02.2021					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ BSI1a/15		Course name: Seminar 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: 5.					
Course level: I.					
Prerequisites:					
Conditions for course completion: Presentation of algorithms for problems of a higher complexity. Presentation of results connecting to the bachelor theses, known and own results.					
Learning outcomes: To inform students about new results in informatics with the goal using them in bachelor theses.					
Brief outline of the course: The seminar has a connection to the bachelor theses and to the repetitorium in informatics. Students present results of their work once in semester at least.					
Recommended literature: Sources of problems: www.ksp.sk www.ksp.sk/MOP/ Special research literature according to bachelor theses.					
Course language:					
Notes:					
Course assessment Total number of assessed students: 215					
A	B	C	D	E	FX
21.4	18.6	24.19	17.21	16.74	1.86
Provides: RNDr. Zuzana Bednárová, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ BSI1b/15		Course name: Seminar 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: 6.					
Course level: I.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes: To inform students about new results in informatics with the goal using them in bachelor theses. To repeat important knowledges in informatics.					
Brief outline of the course: The seminar has a connection to the bachelor theses and to the repetitorium in informatics. Students present results of their work once in semester at least. To get credits, it is necessary to get the developed number of points from repetitorium.					
Recommended literature: Sources of problems: www.ksp.sk www.ksp.sk/MOP/ Special research literature according to bachelor theses.					
Course language:					
Notes:					
Course assessment Total number of assessed students: 127					
A	B	C	D	E	FX
26.77	21.26	25.98	14.96	9.45	1.57
Provides: RNDr. Zuzana Bednárová, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ SRP1/15		Course name: Seminar in informatics and information technologies			
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 credits: 4					
Recommended semester/trimester of the course: 2.					
Course level: I.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 24					
A	B	C	D	E	FX
54.17	16.67	12.5	4.17	0.0	12.5
Provides: prof. RNDr. Stanislav Krajčí, PhD., RNDr. Rastislav Krivoš-Belluš, PhD., RNDr. Zuzana Bednárová, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ SHM/10	Course name: Seminar on history of mathematics
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 6.	
Course level: I., II.	
Prerequisites:	
Conditions for course completion: Homework, presentation on the chosen topic during the seminar. More than 91 points - evaluation of A. 81-90 points - evaluation of B. 71-80 points - rating C. 61-70 points - evaluation of D. 51-60 points - evaluation of E. Less than 50 points - FX evaluation.	
Learning outcomes: Students get an overview of the history of the development of certain mathematical disciplines and selected terms and about parallel between phylogenesis and ontogenesis of mathematical thinking.	
Brief outline of the course: Mathematics in Early Civilizations. Greek Mathematics. Mathematics in the Near and Far East (Arabia, China, India). Medieval European Mathematics. The Renaissance of Mathematics. The Beginning of Modern Mathematics.	
Recommended literature: Burton, D. M.: The History of Mathematics: An Introduction. McGraw–Hill, 2007. Devlin, K.: Jazyk matematiky. Dokořán, 2002 (in czech) Kolman, A.: Dejiny matematiky ve starověku. Academia, Praha, 1968 (in slovak) Juškevič, A. P.: Dejiny matematiky ve středověku. Academia, Praha 1977 (in slovak) Znáň, Š. a kol.: Pohľad do dejín matematiky. Alfa, Bratislava, 1986 (in slovak) Konforovič, A.G.: Významné matematické úlohy, SPN Praha, 1989 (in slovak)	
Course language: Slovak	
Notes:	

Course assessment					
Total number of assessed students: 105					
A	B	C	D	E	FX
72.38	10.48	9.52	3.81	3.81	0.0
Provides: RNDr. Ingrid Semanišínová, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ SMK/17	Course name: Seminar to mathematical clubs
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: 6.	
Course level: I.	
Prerequisites:	
Conditions for course completion: Individual problem solving during seminars and homework. More than 91 points - evaluation of A. 81-90 points - evaluation of B. 71-80 points - rating C. 61-70 points - evaluation of D. 51-60 points - evaluation of E. Less than 50 points - FX evaluation.	
Learning outcomes: Students become familiar with solving problems from mathematical olympiads and mathematical competitions. They acquire theoretical basics necessary to lead mathematical group of talented children.	
Brief outline of the course: Number theory. Equations, inequations, inequalities. Word problems. Planimetry. Stereometry. Combinatorics. Pigeonhole principle. Combinatorial geometry. Probability. Math games. Interesting problems.	
Recommended literature: Brožúry z edície Škola mladých matematikov. (in slovak) Sériá brožúr: XY. ročník matematickej olympiády. (in slovak) Ziegler, G.M.: Matematika Vám to spočítá, Universum, Praha, 2011. (in czech) Zhouf, J. a kol.: Matematické příběhy z korespondenčních seminářů, Prometheus, Praha, 2006. (in czech)	
Course language: Slovak	
Notes:	

Course assessment					
Total number of assessed students: 94					
A	B	C	D	E	FX
57.45	13.83	14.89	10.64	3.19	0.0
Provides: RNDr. Ingrid Semanišínová, PhD.					
Date of last modification: 17.03.2017					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: KPO/ SPKVV/15		Course name: Social and Political Context of Education			
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course: 4., 6.					
Course level: I.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 19					
A	B	C	D	E	FX
42.11	0.0	26.32	26.32	5.26	0.0
Provides: Mgr. Ján Ruman, PhD.					
Date of last modification: 15.02.2021					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ SWI1a/15		Course name: Software engineering			
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course: 4.					
Course level: I.					
Prerequisites: ÚINF/DBS1a/15 and leboÚINF/DBdi/15					
Conditions for course completion:					
Learning outcomes: To provide information concerning the principal activities related to the development of software products.					
Brief outline of the course: System, subsystem, software system. Software processes. Introduction to project management. Requirements gathering. Software modelilng. Software architectures. Software development methodologies. Verification and validation. Resource management.					
Recommended literature: 1. BERKUN, S. The Art Of Project Management. O Reilly, 2005. 2. BJORNER, D. Software engineering 1,2,3. Springer-Verlag Berlin, 2006. 3. SOMMERVILLE, I. Software Engineering. Addison-Wesley, 2007.					
Course language:					
Notes:					
Course assessment Total number of assessed students: 294					
A	B	C	D	E	FX
18.03	20.75	20.41	18.37	21.09	1.36
Provides: prof. RNDr. Gabriel Semanišin, PhD., Mgr. Alexander Szabari, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: KGER/OJPV1/07		Course name: Specialised German Language - Natural Sciences 1			
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course: 4.					
Course level: I.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 139					
A	B	C	D	E	FX
22.3	23.02	24.46	21.58	7.91	0.72
Provides: Mgr. Blanka Jenčíková					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
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: combined, present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 1.	
Course level: I., I.II., II.	
Prerequisites:	
Conditions for course completion: Conditions for course completion: Min. 80% of active participation in classes.	
Learning outcomes: Learning outcomes: Increasing physical condition and performance within individual sports. Strengthening the relationship of students to the selected sports activity and its continual improvement.	
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, basketball, badminton, floorball, yoga, pilates, swimming, body-building, indoor football, self-defence and karate, table tennis, sports for unfit persons, streetball, tennis, and volleyball. 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 unfitnes. 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:	
Course language:	
Notes:	

Course assessment							
Total number of assessed students: 14050							
abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
88.48	0.07	0.0	0.0	0.0	0.04	7.51	3.9
Provides: Mgr. Dana Dračková, PhD., Mgr. Agata Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Marcel Čurgali, Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD.							
Date of last modification: 18.03.2019							
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajči, PhD.							

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚTVŠ/ TVb/11	Course name: Sports Activities II.
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: combined, present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 2.	
Course level: I., I.II., II.	
Prerequisites:	
Conditions for course completion: Conditions for course completion: Final assessment and active participation in classes - min. 75%.	
Learning outcomes: Learning outcomes: Increasing physical condition and performance within individual sports. Strengthening the relationship of students to the selected sports activity and its continual improvement.	
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, basketball, badminton, floorball, yoga, pilates, swimming, body-building, indoor football, self-defence and karate, table tennis, sports for unfit persons, streetball, tennis, and volleyball. 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 unfitnes. 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:	
Course language:	
Notes:	

Course assessment							
Total number of assessed students: 11330							
abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
85.75	0.56	0.02	0.0	0.0	0.05	9.87	3.75
Provides: Mgr. Dana Dračková, PhD., Mgr. Agata Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Marcel Čurgali, Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD.							
Date of last modification: 18.03.2019							
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajči, PhD.							

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice							
Faculty: Faculty of Science							
Course ID: ÚTVŠ/ TVc/11		Course name: Sports Activities III.					
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: combined, present							
Number of ECTS credits: 2							
Recommended semester/trimester of the course: 3.							
Course level: I., I.II., 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: 8383							
abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
90.11	0.05	0.01	0.0	0.0	0.02	4.04	5.76
Provides: Mgr. Marcel Čurgali, Mgr. Dana Dračková, PhD., Mgr. Agata Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD.							
Date of last modification: 03.05.2015							
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.							

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice							
Faculty: Faculty of Science							
Course ID: ÚTVŠ/ TVd/11		Course name: Sports Activities IV.					
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: combined, present							
Number of ECTS credits: 2							
Recommended semester/trimester of the course: 4.							
Course level: I., I.II., 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: 5101							
abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
85.2	0.29	0.04	0.0	0.0	0.0	6.76	7.7
Provides: Mgr. Marcel Čurgali, Mgr. Dana Dračková, PhD., Mgr. Agata Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD.							
Date of last modification: 03.05.2015							
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.							

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ SXM1/15		Course name: Structure formats and representation of data			
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: 5.					
Course level: I.					
Prerequisites:					
Conditions for course completion: Evaluation of partial assignments within larger project. Evaluation of multiple assignments corresponding to learning blocks.					
Learning outcomes: Become acknowledged with theoretical concepts and methodologies with structured and semistructured data. Acquire programming skills with implementations of these concepts.					
Brief outline of the course: Representation of semi-structured data in XML, valid and well-formed XML document. XML parsers: DOM, SAX, StAX. Java API of XML parsers. Schemas for XML documents: DTD, XML Schema. Addressing in XML: XPath. Transformations of XML documents: XSLT. Other formats for semistructured data: JSON, YAML. API for data binding in Java: Jackson (JSON), SnakeYAML (YAML), JAXB (XML).					
Recommended literature: 1. Eliotte "Rusty" Harold. XML Bible, Gold Edition. Wiley, 2001. ISBN 978-0764548192. 2. Grigoris Antoniou, Frank Van Harmelen. A Semantic Web Primer, Second Edition. MIT Press, 2008. ISBN 978-0262012423. 3. Michael Kay. XSLT 2.0 Programmer's Reference, 3rd Edition. Wrox, 2004. ISBN: 978-076456909.					
Course language:					
Notes:					
Course assessment Total number of assessed students: 73					
A	B	C	D	E	FX
32.88	21.92	20.55	13.7	10.96	0.0
Provides: Mgr. Alexander Szabari, PhD.					
Date of last modification: 01.06.2015					

Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚMV/ SVK/10		Course name: Students scientific conference			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present					
Number of ECTS credits: 4					
Recommended semester/trimester of the course:					
Course level: I., II.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes: Individual scientific work of students. Publishing of obtained results in a written form and as a public presentation.					
Brief outline of the course:					
Recommended literature: With respect to the research problematics (article in journals, books).					
Course language: Slovak or English					
Notes:					
Course assessment Total number of assessed students: 94					
A	B	C	D	E	FX
98.94	1.06	0.0	0.0	0.0	0.0
Provides:					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ DGS/15	Course name: Students` Digital Literacy
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 1.	
Course level: I.	
Prerequisites:	
Conditions for course completion: continuous assessment and final project	
Learning outcomes: To acquire an overview of the current possibilities of digital technology to develop skills and competencies with emphasis on the area of communication, social interaction and personal. To acquire basic digital skills for working with advanced technologies (mobile phone, tablet, laptop, social media, online webtechnologies). To understand the value of existing advanced technologies for better and more effective learning, work and active life in higher education, lifelong learning and further career prospects.	
Brief outline of the course: Introduction to the problems of current, commonly available digital technology. Tools for access to online information source (mobile applications for access to information systems, databases, data books). Tools for collecting, generating direct information and data and its subsequent analysis and visualization. Tools for providing and sharing of electronic content (cloud technology - Google Drive, Youtube, Google+, Skydrive, Dropbox). Tools for communication, discussion and collaborative activities. Legal work with digital technologies and resources, plagiarism, critical evaluation of digital resources. Security, privacy, digital ethics and etiquette, digital citizenship.	
Recommended literature: 1. Bruff, D. (2009). Teaching with classroom response systems: Creating active learning environments. San Francisco: Jossey-Bass. 2. Byrne, R. (2012). Google Drive and Docs for Teachers. Free Tech for Teachers. 3. Kawasaki, G. (2012). What the Plus! Google+ for the Rest of Us. Amazon igital Services. 4. Kolb, L. (2011). Cell Phones in the Classroom: A Practical Guide for Educators. International Society for Technology in Education.	
Course language: Slovak	
Notes:	

Course assessment	
Total number of assessed students: 248	
abs	n
95.97	4.03
Provides: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Jozef Hanč, PhD., doc. RNDr. Ľubomír Šnajder, PhD.	
Date of last modification: 03.05.2015	
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚTVŠ/ LKSp/13	Course name: Summer Course-Rafting of TISA River
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: Per study period: 36s Course method: combined, present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: I., II.	
Prerequisites:	
Conditions for course completion: Conditions for course completion: Attendance Final assessment: Raft control on the waterway (attended/not attended)	
Learning outcomes: Learning outcomes: Students have knowledge of rafts (canoe) and their control on waterway.	
Brief outline of the course: Brief outline of the course: 1. Assessment of difficulty of waterways 2. Safety rules for rafting 3. Setting up a crew 4. Practical skills training using an empty canoe 5. Canoe lifting and carrying 6. Putting the canoe in the water without a shore contact 7. Getting in the canoe 8. Exiting the canoe 9. Taking the canoe out of the water 10. Steering a) The pry stroke (on fast waterways) b) The draw stroke 11. Capsizing 12. Commands	
Recommended literature:	
Course language:	
Notes:	

Course assessment	
Total number of assessed students: 153	
abs	n
45.75	54.25
Provides: Mgr. Dávid Kaško, PhD.	
Date of last modification: 18.03.2019	
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚTVŠ/ KP/12	Course name: Survival Course
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: Per study period: 36s Course method: combined, present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: I., II.	
Prerequisites:	
Conditions for course completion: Conditions for course completion: Attendance Final assessment: continuous fulfilment of all tasks within the course	
Learning outcomes: Learning outcomes: Students will be familiarized with principles of safe stay and movement in extreme natural conditions as they will obtain theoretical knowledge and practical skills to solve the extraordinary and demanding situations connected with survival and minimization of damage to health. The course develops team work and students will learn how to manage and face the situations that require overcoming of obstacles.	
Brief outline of the course: Brief outline of the course: Lectures: 1. Principles of behaviour and safety for movement and stay in unknown mountains 2. Preparation and leadership of tour 3. Objective and subjective danger in mountains 4. Principles of hygiene and prevention of damage to health in extreme conditions Exercises: 1. Movement in terrain, orientation and navigation in terrain (compasses, GPS) 2. Preparation of improvised overnight stay 3. Water treatment and food preparation.	
Recommended literature:	
Course language:	
Notes:	

Course assessment	
Total number of assessed students: 393	
abs	n
44.53	55.47
Provides: MUDr. Peter Dombrovský, Mgr. Marek Valanský	
Date of last modification: 15.03.2019	
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajči, PhD.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: ÚINF/ SLO1a/15		Course name: Symbolic logic			
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: 6.					
Course level: I., II.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes: To understand basic notions of sentence and predicate logic - sentence, sentence scheme, provability, satisfiability, term, formula.					
Brief outline of the course: Predicate logic – logic language, syntax and semantics, term, formula. Axioms, proof, provability. Interpretation, truth, model. Correctness of the predicate logic.					
Recommended literature: GOLDSTERN M., JUDAH H.: The Incompleteness Phenomenon, A New Course in Mathematical Logic, A K Peters, Wellesley, Massachusetts, 1995 http://cs.ics.upjs.sk/~krajci/skola/vyucba/ucebneTexty/logika/logika.pdf					
Course language:					
Notes:					
Course assessment Total number of assessed students: 394					
A	B	C	D	E	FX
24.87	9.9	12.44	11.68	27.92	13.2
Provides: prof. RNDr. Stanislav Krajčí, PhD., RNDr. Ondrej Krídlo, PhD.					
Date of last modification: 03.05.2015					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
Course ID: KPE/ TVE/08		Course name: Theory of Education			
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present					
Number of ECTS credits: 2					
Recommended semester/trimester of the course: 4., 6.					
Course level: I.					
Prerequisites:					
Conditions for course completion:					
Learning outcomes:					
Brief outline of the course:					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 431					
A	B	C	D	E	FX
31.09	35.5	22.51	6.73	1.62	2.55
Provides: Mgr. Katarína Petříková, PhD.					
Date of last modification: 12.02.2021					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajčí, PhD.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ TYS1/15	Course name: Typographical systems
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: 6.	
Course level: I.	
Prerequisites:	
Conditions for course completion:	
Learning outcomes: To provide the basic information on principles for typesetting of documents containing mathematical formulas in Plain TeX, AMS-TeX, and LaTeX.	
Brief outline of the course: Typesetting of a plain text, special text symbols, using of text fonts. TeX macros. Enumerations in text and footnote command. Parameter setting determining the appearance of the pages. Typesetting of mathematical formulas in text and displays, aligning formulas. Definitions of TeX macros. Making tables and pictures. Definitions, theorems, and proofs in a mathematical document. Contents, bibliography, sections in a document.	
Recommended literature: 1. D. E. Knuth, The TeXbook, Computers and Typesetting, Addison-Wesley, Reading, Massachusetts, 1986. 2. M. Doob, Jemný úvod do TeXu, CSTUG, 1990; český překlad z "A Gentle Introduction to TeX" (text voľne prístupný v CTAN archíve). 3. O. Ulrych, AMS-TeX za 59 minút, (verzia 1.0), Praha, 1989. 4. J. Chlebíková, AMS-TeX (verzia 2.0), Bratislava, 1992. 5. M. Spivak, The Joy of TeX, Amer. Math. Soc., 1986. 6. L. Lamport, LaTeX: A Document Preparation System, Addison-Wesley, Massachusetts, 1986. 7. L. Lamport, MakeIndex: An index processor for LaTeX, 17 February 1987. 8. J. Rybička, LaTeX pro začátečníky, Konvoj, Brno, 1995. 9. H. Partl, E. Schlegl, I. Hyna, P. Sýkora, LaTeX – Stručný popis. 10. T. Oetiker, H. Partl, I. Hyna, E. Schlegl, M. Kocer, P. Sýkora, Ne příliš stručný úvod do systému LaTeX2e (neboli LaTeX2e v 73 minutách). 11. M. Goossens, F. Mittelbach, and A. Samarin, The LaTeX Companion, Addison-Wesley, Reading, Massachusetts, 1994. Kapitola 8 je voľne prístupná v TeX archívoch (ch8.pdf). 4 12. G. Grätzer, Math into LaTeX, 3rd edition, Birkhäuser, Boston, 2000.	
Course language: Slovak or english	

Notes:					
Course assessment					
Total number of assessed students: 246					
A	B	C	D	E	FX
47.97	18.29	19.51	6.5	6.91	0.81
Provides: prof. RNDr. Stanislav Krajči, PhD.					
Date of last modification: 10.02.2021					
Approved: doc. RNDr. Ondrej Hutník, PhD., prof. RNDr. Stanislav Krajči, PhD.					