

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> CJP/ PFAJAKA/07	<b>Course name:</b> Academic English
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> combined, present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b>	
<b>Course level:</b> I., II., N	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b> kontrolný písomný test, aktivita na hodine záverečný písomný test miniprezentácie na dané témy povolené max. 2 absencie stupnica hodnotenia: A 93-100, B 86-92, C 79-85, D 72-78, E 65-71, FX 64 a menej aktivita na hodine predmet končí hodnotením	
<b>Learning outcomes:</b> Osvojenie si a rozvíjanie užitočných techník akademického písomného ako aj ústneho prejavu so zameraním na rozvoj jazykových kompetencií študenta, na upevňovanie a rozvíjanie všetkých jazykových zručností na stredne pokročilej úrovni ovládania jazyka (B2) podľa Spoločného európskeho referenčného rámca pre jazyky). Predmet kladie dôraz na používanie angličtiny v akademickom prostredí.	
<b>Brief outline of the course:</b> Akademická angličtina a jej charakteristiky Čítanie odborných článkov, analýza, parafrázovanie Spájacie slová v akademickom písaní Formálna a neformálna angličtina a ich črty Vyjadrovanie príčiny, následku v akademickom jazyku Čítanie odbornej publikácie, analýza, parafrázovanie Slovo tvorba v anglickom jazyku- predpony a prípony Ako prezentovať v angličtine Parafrázovanie a definovanie Ako písať abstrakt Slovosled v akademickom diškurze	
<b>Recommended literature:</b> 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					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 295					
A	B	C	D	E	FX
28.81	22.37	16.27	11.53	8.14	12.88
<b>Provides:</b> PaedDr. Gabriela Bednáriková					
<b>Date of last modification:</b> 06.09.2016					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ATC/10		<b>Course name:</b> Algebra and number theory			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 1 <b>Per study period:</b> 28 / 14 <b>Course method:</b> present					
<b>Number of credits:</b> 4					
<b>Recommended semester/trimester of the course:</b> 4.					
<b>Course level:</b> I.					
<b>Prerequisites:</b> ÚMV/ALG2b/10					
<b>Conditions for course completion:</b> 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.					
<b>Learning outcomes:</b> Obtain basic knowledge about groups and from the elementary number theory.					
<b>Brief outline of the course:</b> Groups, subgroups, quotient groups, homomorphism theorems for groups, selected topics of the number theory.					
<b>Recommended literature:</b> G.Birkoff, S.Mac Lane: A Survey of Modern Algebra, New York 1965 I.R. Shafarevich: Basic Notions of Algebra, Springer, 2005					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 113					
A	B	C	D	E	FX
10.62	17.7	27.43	22.12	16.81	5.31
<b>Provides:</b> doc. RNDr. Matúš Harminec, CSc.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ ALGa/10		<b>Course name:</b> Algebra I			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 3 / 3 <b>Per study period:</b> 42 / 42 <b>Course method:</b> present					
<b>Number of credits:</b> 7					
<b>Recommended semester/trimester of the course:</b> 1.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b> According to the results from the semester and in view of the results of the written and oral final exam..					
<b>Learning outcomes:</b> 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 exercises.					
<b>Brief outline of the course:</b> Divisibility in $\mathbb{Z}$ . Fields. Systems of linear equations, Gauss elimination. Maps, permutations. Computing with matrices. Determinants, Cramer rule.					
<b>Recommended literature:</b> T.S Blyth, E.F. Robertson: Basic linear algebra, Springer Verlag, 2001. K. Jänich: Linear algebra, Springer Verlag, 1991.					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 1250					
A	B	C	D	E	FX
10.8	11.12	17.6	17.76	29.68	13.04
<b>Provides:</b> prof. RNDr. Danica Studenovská, CSc., RNDr. Igor Fabrici, Dr. rer. nat., Mgr. Martina Sabová, RNDr. Miroslava Černegová, Mgr. Jana Chudá, RNDr. Anna Mišková					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ ALG2b/10		<b>Course name:</b> Algebra II			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 4 / 2 <b>Per study period:</b> 56 / 28 <b>Course method:</b> present					
<b>Number of credits:</b> 7					
<b>Recommended semester/trimester of the course:</b> 2.					
<b>Course level:</b> I.					
<b>Prerequisites:</b> ÚMV/ALGa/10					
<b>Conditions for course completion:</b> According to tests and to the exam.					
<b>Learning outcomes:</b> 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.					
<b>Brief outline of the course:</b> 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.					
<b>Recommended literature:</b> A. Kurosh: Higher Algebra, Mir Publishers, 1975.					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 478					
A	B	C	D	E	FX
12.76	11.92	17.36	18.2	29.08	10.67
<b>Provides:</b> prof. RNDr. Danica Studenovská, CSc., doc. RNDr. Matúš Harminc, CSc.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ ALG3b/10		<b>Course name:</b> Algebra II for informaticians and physicists			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 4 / 2 <b>Per study period:</b> 56 / 28 <b>Course method:</b> present					
<b>Number of credits:</b> 7					
<b>Recommended semester/trimester of the course:</b>					
<b>Course level:</b> I., II.					
<b>Prerequisites:</b> ÚMV/ALGa/10					
<b>Conditions for course completion:</b> Exam					
<b>Learning outcomes:</b> To provide deeper knowledge on vector spaces, linear transformations and Euclidean spaces.					
<b>Brief outline of the course:</b> 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.					
<b>Recommended literature:</b> A. F. Beardon: Algebra and Geometry, Cambridge University Press, 2005 G. Birkhoff, S. Mac Lane: A Survey of Modern Algebra, New York 1965					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 284					
A	B	C	D	E	FX
9.86	7.75	9.86	14.44	42.61	15.49
<b>Provides:</b> doc. RNDr. Roman Soták, PhD., Mgr. Mária Janicová, Mgr. Jana Chudá					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ASU1/15		<b>Course name:</b> Algorithms and data structures			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 1 <b>Per study period:</b> 28 / 14 <b>Course method:</b> present					
<b>Number of credits:</b> 4					
<b>Recommended semester/trimester of the course:</b> 4.					
<b>Course level:</b> I.					
<b>Prerequisites:</b> ÚINF/PAZ1b/15 or ÚINF/ePAZ1b/11 or ÚINF/ePAZ1b/15					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 47					
A	B	C	D	E	FX
12.77	6.38	6.38	12.77	57.45	4.26
<b>Provides:</b> doc. RNDr. Gabriela Andrejková, CSc., prof. RNDr. Viliam Geffert, DrSc., RNDr. Rastislav Krivoš-Belluš, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> KPE/ ALP/06		<b>Course name:</b> Alternative Education			
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 4.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 65					
A	B	C	D	E	FX
78.46	18.46	0.0	1.54	0.0	1.54
<b>Provides:</b> PaedDr. Renáta Orosová, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ APS1/15		<b>Course name:</b> Applied probability and statistics			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 2 <b>Per study period:</b> 28 / 28 <b>Course method:</b> present					
<b>Number of credits:</b> 5					
<b>Recommended semester/trimester of the course:</b>					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b> Acquired basic concepts and techniques of probability theory, statistics and corresponding software.					
<b>Brief outline of the course:</b> 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.					
<b>Recommended literature:</b> - 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					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 20					
A	B	C	D	E	FX
10.0	10.0	10.0	15.0	50.0	5.0
<b>Provides:</b> doc. RNDr. Csaba Török, CSc.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ AFJ1a/15		<b>Course name:</b> Automata and formal languages			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 1 <b>Per study period:</b> 28 / 14 <b>Course method:</b> present					
<b>Number of credits:</b> 4					
<b>Recommended semester/trimester of the course:</b> 4.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b> Oral examination.					
<b>Learning outcomes:</b> To provide theoretical background for studying computer science in general, by giving the necessary knowledge in theory of automata.					
<b>Brief outline of the course:</b> 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.					
<b>Recommended literature:</b> 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.					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 741					
A	B	C	D	E	FX
22.94	17.95	24.29	19.03	10.53	5.26
<b>Provides:</b> Mgr. Alexander Szabari, PhD., prof. RNDr. Viliam Geffert, DrSc.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/AFJ1b/15		<b>Course name:</b> Automata and formal languages			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 1 <b>Per study period:</b> 28 / 14 <b>Course method:</b> present					
<b>Number of credits:</b> 5					
<b>Recommended semester/trimester of the course:</b> 5.					
<b>Course level:</b> I., II.					
<b>Prerequisites:</b> ÚINF/AFJ1a/15					
<b>Conditions for course completion:</b> Test and oral examination.					
<b>Learning outcomes:</b> To provide theoretical background for studying computer science in general, by giving the necessary knowledge in theory of automata.					
<b>Brief outline of the course:</b> 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.					
<b>Recommended literature:</b> 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.					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 498					
A	B	C	D	E	FX
37.55	14.26	20.08	18.67	6.63	2.81
<b>Provides:</b> prof. RNDr. Viliam Geffert, DrSc., Mgr. Alexander Szabari, PhD.					
<b>Date of last modification:</b> 01.06.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚINF/ BKP/14	<b>Course name:</b> Bachelor Project
<b>Course type, scope and the method:</b> <b>Course type:</b> <b>Recommended course-load (hours):</b> <b>Per week: Per study period:</b> <b>Course method:</b> present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b> 5.	
<b>Course level:</b> I.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b>	
<b>Learning outcomes:</b>	
<b>Brief outline of the course:</b>	
<b>Recommended literature:</b>	
<b>Course language:</b>	
<b>Notes:</b>	
<b>Course assessment</b> Total number of assessed students: 0	
abs	n
0.0	0.0
<b>Provides:</b>	
<b>Date of last modification:</b>	
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.	

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚMV/ BKP2/14	<b>Course name:</b> Bachelor Project
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 1 <b>Per study period:</b> 14 <b>Course method:</b> present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b> 5.	
<b>Course level:</b> I.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b> To prepare and present a contribution related to thesis and its topic.	
<b>Learning outcomes:</b> 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.	
<b>Brief outline of the course:</b> 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.	
<b>Recommended literature:</b> electronic information sources	
<b>Course language:</b> Slovak or English	
<b>Notes:</b>	
<b>Course assessment</b> Total number of assessed students: 93	
abs	n
100.0	0.0
<b>Provides:</b> doc. RNDr. Dušan Šveda, CSc.	
<b>Date of last modification:</b> 03.05.2015	
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.	

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ BPO/14		<b>Course name:</b> Bachelor thesis and its defence			
<b>Course type, scope and the method:</b> <b>Course type:</b> <b>Recommended course-load (hours):</b> <b>Per week: Per study period:</b> <b>Course method:</b> present					
<b>Number of credits:</b> 4					
<b>Recommended semester/trimester of the course:</b>					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b> Acquiring the required number of credits in the structure defined by the study plan.					
<b>Learning outcomes:</b> Evaluation of student's competences with respect to the profile of the graduate.					
<b>Brief outline of the course:</b> Presentation of results of the bachelor thesis, answering the questions of the thesis supervisor and answering the questions of members of evaluation committee.					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 18					
A	B	C	D	E	FX
61.11	27.78	5.56	0.0	5.56	0.0
<b>Provides:</b>					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ BPO/14		<b>Course name:</b> Bachelor Thesis and its Defence			
<b>Course type, scope and the method:</b> <b>Course type:</b> <b>Recommended course-load (hours):</b> <b>Per week: Per study period:</b> <b>Course method:</b> present					
<b>Number of credits:</b> 4					
<b>Recommended semester/trimester of the course:</b>					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 17					
A	B	C	D	E	FX
58.82	23.53	11.76	5.88	0.0	0.0
<b>Provides:</b>					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚBEV/ BDD/05		<b>Course name:</b> Biology of Children and Adolescents			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 0 <b>Per study period:</b> 28 / 0 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 4., 6.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b> Written test					
<b>Learning outcomes:</b> 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.					
<b>Brief outline of the course:</b> 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.					
<b>Recommended literature:</b> 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					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 1159					
A	B	C	D	E	FX
34.17	23.12	17.0	16.48	8.8	0.43
<b>Provides:</b> doc. RNDr. Monika Kassayová, CSc.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚMV/ ZBR/14	<b>Course name:</b> Bridge Fundamentals
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b> 5.	
<b>Course level:</b> I.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b> Active participation on exercises.	
<b>Learning outcomes:</b> A student gets acquainted with fundamentals of the contract bridge, develops his/her logical thinking and consolidates his/her habits of positive social behaviour.	
<b>Brief outline of the course:</b> 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.	
<b>Recommended literature:</b> T. Menyhért: Kurz bridžu 2013, <a href="http://new.bridgekosice.sk/kurz-bridzu-2013/">http://new.bridgekosice.sk/kurz-bridzu-2013/</a> R. Pavlicek: Learn To Play Bridge!, <a href="http://www.rpbridge.net/1a00.htm">http://www.rpbridge.net/1a00.htm</a> ACBL SAYC System Booklet, <a href="http://ebookbrowse.net/acbl-sayc-pdf-d201415187">http://ebookbrowse.net/acbl-sayc-pdf-d201415187</a>	
<b>Course language:</b> Slovak or English	
<b>Notes:</b> Minimum number of participants is 4.	
<b>Course assessment</b> Total number of assessed students: 13	
abs	n
92.31	7.69

<b>Provides:</b> doc. RNDr. Miroslav Ploščica, CSc., prof. RNDr. Mirko Horňák, CSc.
<b>Date of last modification:</b> 03.05.2015
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> KOP/OPaPDV/14	<b>Course name:</b> Civil Law and Intellectual Property Rights
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present	
<b>Number of credits:</b> 4	
<b>Recommended semester/trimester of the course:</b> 3., 5.	
<b>Course level:</b> I., N	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b>	
<b>Learning outcomes:</b>	
<b>Brief outline of the course:</b>	
<b>Recommended literature:</b>	
<b>Course language:</b>	
<b>Notes:</b>	
<b>Course assessment</b> Total number of assessed students: 21	
abs	n
85.71	14.29
<b>Provides:</b> JUDr. Renáta Bačárová, PhD., LL.M.	
<b>Date of last modification:</b> 06.06.2016	
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.	

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> CJP/ PFAJKKA/07	<b>Course name:</b> Communicative Competence in English
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week: 2 Per study period: 28</b> <b>Course method:</b> combined, present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b>	
<b>Course level:</b> I., II., N	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b> Active participation in class and completed homework assignments. Students are allowed to miss two classes at the most. Continuous assessment: 2 credit tests (presumably in weeks 6 and 13) and academic presentation in English. Test 1 = 40 points, test 2 = 40 points, presentation = 20 points. In order to pass the course, it is necessary to score at least 65 points as a sum of test and presentation scores. 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	
<b>Learning outcomes:</b> 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 - úroveň B2.	
<b>Brief outline of the course:</b> 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	

Životné prostredie a ekológia Výnimky zo slovosledu Frázové slovesá a ich použitie Charakteristiky neformálneho diškurzu					
<b>Recommended literature:</b> McCarthy M., O'Dell F.: English Vocabulary in Use, 1994 Misztal M.: Thematic Vocabulary, 1998 Fictumova J., Ceccarelli J., Long T.: Angličtina, konverzace pro pokročilé, Barrister and Principal, 2008 Peters S., Gráf T.: Time to practise, Polyglot, 2007 <a href="http://www.bbclearningenglish.com">www.bbclearningenglish.com</a> Jones L.: Communicative Grammar Practice, CUP, 1985 Alexander L.G.: Longman English Grammar, Longman, 1988					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 191					
A	B	C	D	E	FX
38.22	21.99	18.85	9.42	7.33	4.19
<b>Provides:</b> Mgr. Zuzana Naďová					
<b>Date of last modification:</b> 01.09.2016					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> KGER/ NJKK/07		<b>Course name:</b> Communicative Competence in German Language			
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b>					
<b>Course level:</b> I., II.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 44					
A	B	C	D	E	FX
59.09	13.64	6.82	4.55	13.64	2.27
<b>Provides:</b> Mgr. Eva Černáková, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> CJP/ PFAJGA/07	<b>Course name:</b> Communicative Grammar in English
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> combined, present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b>	
<b>Course level:</b> I., II., N	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b> kontrolná písomná práca, záverečná písomná práca stupnica hodnotenia: A 93-100, B 86-92, C 79-85, D 65-71, 64 a menej - FX aktivita na hodinách, povolené 2 absencie predmet je ukončený hodnotením	
<b>Learning outcomes:</b> Identifikovanie a odstránenie najfrekvencovanejších gramatických chýb v ústnom prejave, ako aj v písomnom styku. Rozvoj jazykových kompetencií študenta so zameraním na funkcie gramatiky anglického jazyka v každodennej interakcii, v komunikačnom akte na stredne pokročilej úrovni ovládania jazyka (B2 podľa Spoločného európskeho referenčného rámca pre jazyky).	
<b>Brief outline of the course:</b> Zvieratá a rastliny na zemi Zločin a trest Cestovanie po mori a vzduchom Jedlá a reštaurácie, národná kuchyňa Vzdelanie na vysokých školách História a viera Vybrané problémy anglickej výslovnosti, gramatiky ( nepriama reč, slovotvorba, predložkové väzby, anglická syntax, kondicionály v angličtine a slovnej zásoby príslušného zamerania Vybrané funkcie praktického odborného jazyka potrebné na prácu s odborným textom	
<b>Recommended literature:</b> Misztal M.: Thematic Vocabulary, 1994 McCarthy, O'Dell: English Vocabulary in Use, 1994 Alexander L.G.: Longman English Grammar, Longman, 1988 Jones I. - Communicative Grammar Practice, CUP, 1992 Vince M.: Macmillan Grammar in Context, Macmillan, 2008 www.bbclearningenglish.com Gráf T., Peters S.: Time to practise, Polyglot, 2007	

<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b>					
Total number of assessed students: 378					
A	B	C	D	E	FX
39.42	18.25	17.2	8.73	5.82	10.58
<b>Provides:</b> PaedDr. Gabriela Bednáriková					
<b>Date of last modification:</b> 06.09.2016					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> KGER/ NJKG/07		<b>Course name:</b> Communicative Grammar in German Language			
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b>					
<b>Course level:</b> I., II.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 46					
A	B	C	D	E	FX
54.35	13.04	8.7	4.35	10.87	8.7
<b>Provides:</b> PaedDr. Ingrid Puchalová, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ TVY/15		<b>Course name:</b> Computability theory			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 1 <b>Per study period:</b> 28 / 14 <b>Course method:</b> present					
<b>Number of credits:</b> 4					
<b>Recommended semester/trimester of the course:</b> 5.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b> To provide theoretical background for studying computer science in general, by familiarising students with basic knowledge of the theory of computability.					
<b>Brief outline of the course:</b> 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.					
<b>Recommended literature:</b> 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					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 193					
A	B	C	D	E	FX
40.93	10.88	15.03	7.25	7.25	18.65
<b>Provides:</b> doc. RNDr. Stanislav Krajči, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajči, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚINF/PSIN/15	<b>Course name:</b> Computer network Internet
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 3 / 1 <b>Per study period:</b> 42 / 14 <b>Course method:</b> present	
<b>Number of credits:</b> 5	
<b>Recommended semester/trimester of the course:</b> 4.	
<b>Course level:</b> I.	
<b>Prerequisites:</b> ÚINF/PAZ1a/15 or ÚINF/ePAZ1a/11 or ÚINF/ePAZ1a/15	
<b>Conditions for course completion:</b> Activity at excercises, home work, test. verbal exam, final test	
<b>Learning outcomes:</b> 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, to know basic application protocols and use them in own applications.	
<b>Brief outline of the course:</b> 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.	
<b>Recommended literature:</b> 1. J. F. Kurose, Keith W. Ross: Computer Networking: A Top-Down Approach, 5. edícia, 2010 2. A. S. Tanenbaum: Computer Networks, Prentice Hall, 2002 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					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b>					
Total number of assessed students: 657					
A	B	C	D	E	FX
9.74	4.57	10.96	15.53	38.05	21.16
<b>Provides:</b> doc. Ing. Štefánia Gallová, CSc., RNDr. Peter Gurský, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ KRS/15		<b>Course name:</b> Cryptographic systems and their applications			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 3 / 2 <b>Per study period:</b> 42 / 28 <b>Course method:</b> present					
<b>Number of credits:</b> 6					
<b>Recommended semester/trimester of the course:</b> 3.					
<b>Course level:</b> I., II.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 96					
A	B	C	D	E	FX
12.5	9.38	9.38	12.5	35.42	20.83
<b>Provides:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Jozef Jirásek, PhD., RNDr. Rastislav Krivoš-Belluš, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ DBS1a/15		<b>Course name:</b> Database systems			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 2 <b>Per study period:</b> 28 / 28 <b>Course method:</b> present					
<b>Number of credits:</b> 5					
<b>Recommended semester/trimester of the course:</b> 3.					
<b>Course level:</b> I., II.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b> Acquired basic concepts and techniques of relational database theory and corresponding software.					
<b>Brief outline of the course:</b> Data models. Languages for defining and manipulating data (DDL, DML). Tables, attributes and integrity constraints. Queries: select, where, group by, aggregate and system functions. Nested queries and several tables: join, union, primary, foreign key. Relational algebra.					
<b>Recommended literature:</b> - S. Krajčí: Databázové systémy, UPJŠ, 2005 - J. ULLMAN: Principles of database and knowledge – base systems, Comp. Sci. Press., 1988 - R. Ramakrishnan, J. Gehrke, Database Management Systems, McGraw-Hill, 2003 - Itzik Ben-Gun, Microsoft SQL Server 2012 T-SQL Fundamentals, O'Reilly, 2012 - HENDERSON, K.: The Guru's Guide to Transact SQL, Addison Wesley Professional, 2000					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 741					
A	B	C	D	E	FX
11.07	8.77	17.14	22.67	32.39	7.96
<b>Provides:</b> doc. RNDr. Csaba Török, CSc.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/DBS1b/15		<b>Course name:</b> Database systems			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 2 <b>Per study period:</b> 28 / 28 <b>Course method:</b> present					
<b>Number of credits:</b> 6					
<b>Recommended semester/trimester of the course:</b> 4.					
<b>Course level:</b> I.					
<b>Prerequisites:</b> ÚINF/DBS1a/15 or ÚINF/DBdi/15					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b> Mastering the basic techniques of effective design, normalization and programmable extension of relational databases.					
<b>Brief outline of the course:</b> Database modelling. Functional dependency and normalization. Recursion and transitive closure. Cursors. Stored procedures. Indices and B-trees. Triggers. Transaction. XML, SDL, XPath, XQuery.					
<b>Recommended literature:</b> - S. Krajčí: Databázové systémy, UPJŠ, 2005 2. J. - Date C.J., Database Design and Relational Theory, O'Reilly, 2012 - Atkinson, P., Vierra, R., BEGINNING MICROSOFT SQL SERVER 2012 PROGRAMMING, John Wiley - Wrox, 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					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 624					
A	B	C	D	E	FX
10.26	7.69	10.9	22.44	37.02	11.7
<b>Provides:</b> doc. RNDr. Csaba Török, CSc.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ DSMa/10		<b>Course name:</b> Discrete mathematics I			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 2 <b>Per study period:</b> 28 / 28 <b>Course method:</b> present					
<b>Number of credits:</b> 5					
<b>Recommended semester/trimester of the course:</b> 3.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b> Examination.					
<b>Learning outcomes:</b> 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.					
<b>Brief outline of the course:</b> 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					
<b>Recommended literature:</b> 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.					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 515					
A	B	C	D	E	FX
12.82	10.87	17.28	22.72	27.57	8.74

<b>Provides:</b> prof. RNDr. Stanislav Jendroľ, DrSc., RNDr. Mária Maceková, PhD., Mgr. Juraj Valiska
<b>Date of last modification:</b> 03.05.2015
<b>Approved:</b> doc. RNDr. Stanislav Krajči, PhD., doc. RNDr. Ondrej Hutník, PhD.

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚMV/ DSMb/10	<b>Course name:</b> Discrete mathematics II
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 2 <b>Per study period:</b> 28 / 28 <b>Course method:</b> present	
<b>Number of credits:</b> 5	
<b>Recommended semester/trimester of the course:</b> 4.	
<b>Course level:</b> I.	
<b>Prerequisites:</b> ÚMV/DSMa/10 or ÚMV/DSM3a/10	
<b>Conditions for course completion:</b> 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%)	
<b>Learning outcomes:</b> Mastered fundamental methods of graph theory. To be familiar with some possibilities of applications of graph theory	
<b>Brief outline of the course:</b> 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.	
<b>Recommended literature:</b> 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	
<b>Course language:</b> Slovak	

<b>Notes:</b>					
<b>Course assessment</b>					
Total number of assessed students: 357					
A	B	C	D	E	FX
11.76	8.96	16.25	19.05	29.13	14.85
<b>Provides:</b> prof. RNDr. Stanislav Jendroľ, DrSc., RNDr. Michaela Vrbjarová, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajči, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> KPPaPZ/PUDB/15		<b>Course name:</b> Drug Addiction Prevention in University Students			
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 3., 5.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 11					
A	B	C	D	E	FX
72.73	27.27	0.0	0.0	0.0	0.0
<b>Provides:</b> Mgr. Marianna Berinšterová, PhD., Prof. PhDr. Oľga Orosová, CSc.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajči, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚINF/EDS/15	<b>Course name:</b> Educational software
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 0 / 2 <b>Per study period:</b> 0 / 28 <b>Course method:</b> present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b> 5.	
<b>Course level:</b> I.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b> 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.	
<b>Learning outcomes:</b> 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.	
<b>Brief outline of the course:</b> Educational software types. Onlilne educational sources and tools. Multimedia processing. Tools for creation of teaching aids.	
<b>Recommended literature:</b> 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, Multimédia / Martin Homola ... [et al.]. - Bratislava : Štátny pedagogický ústav, 2010. - 68 s. - Č. projektu: ŠPVV ĎVUi 26120130001. - ISBN 9788081180514 (brož.).	
<b>Course language:</b>	

**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: 7

A	B	C	D	E	FX
28.57	28.57	28.57	0.0	14.29	0.0

**Provides:** doc. RNDr. Ľubomír Šnajder, PhD.

**Date of last modification:** 03.05.2015

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

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> CJP/ PFAJ4/07	<b>Course name:</b> English Language of Natural Science
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b> 4.	
<b>Course level:</b> I.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b> Active participation in class and completed homework assignments. Students are allowed to miss 2 classes at the most. Continuous assessment: 2 credit tests (presumably in weeks 6 and 13) and academic presentation in English. Test 1 = 40 points, test 2 = 40 points, presentation = 20 points. In order to be admitted to the final exam, a student has to score at least 65 points as a sum of both credit tests and academic presentation. Exam test = 100 points. 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.	
<b>Learning outcomes:</b> Rozvoj jazykových kompetencií študentov príslušného študijného odboru, upevňovanie a rozvíjanie všetkých jazykových zručností (hovorenie, písanie, čítanie, počúvanie) predovšetkým v odbornej/profesnej angličtine, na stredne pokročilej úrovni ovládania jazyka (B2). Dôraz sa kladie na aktívne správne používanie odbornej/profesnej angličtiny.	
<b>Brief outline of the course:</b> ANGLICKÝ JAZYK PRE GEOGRAFOV: Veda a výskum. Odbor geografia. Planéta Zem. Naša slnečná sústava. Litosféra, hydrosféra, atmosféra, biosféra. Zem - dynamická planéta. Tektonické platne. Sopečná činnosť. Zemetrasenia. Svetové oceány. Morské prúdy. Tsunami. Veľký koralový útes. Atmosféra - zloženie atmosféry. Kontinenty. Európa - krajiny, národnosti. ANGLICKÝ JAZYK PRE EKOLÓGOV: Veda a výskum. Odbor ekológia.	

Životné prostredie. Znečistenie a dôsledky.  
Sopečná činnosť, zemetrasenia.  
Great Pacific Garbage Patch.  
Globálne otepľovanie a dôsledky. Ľadovce.  
Počasie a klíma. Búrky, hurikány, tsunami.  
Život na Zemi. Ohrozené rastlinné a živočíšne druhy.  
**ANGLICKÝ JAZYK PRE BIOLÓGOV:**  
veda a výskum, odbor biológia  
morfológia rastlín, koreň  
stonka, list  
rozmnožovanie rastlín, kvet  
biológia človeka - telesné sústavy  
slovná zásoba z oblasti botanickej a zoologickej nomenklatury  
**ANGLICKÝ JAZYK PRE MATEMATIKOV:**  
Veda a výskum, odbor matematika  
čísla a tvary v matematike  
Elementárna algebra  
Elementárna geometria  
Výpočty v matematike  
Pytagoras, Pytagorova veta  
Grafy a diagramy  
Štatistika  
**ANGLICKÝ JAZYK PRE FYZIKOV**  
Veda a výskum, odbor fyzika  
Atómy a molekuly  
Hmota a jej premeny  
Elektrina, jej využitie  
Zvuka, jeho prenos  
Svetlo  
Solárny systém  
Matematické operácie  
**ANGLICKÝ JAZYK PRE CHEMIKOV:**  
Veda a výskum, odbor chémia:  
História, alchímia  
Nomenklatura  
Laboratórium a jeho vybavenie  
Periodická tabuľka  
Hmota a jej premeny  
Organická chémia  
Anorganická chémia  
**ANGLICKÝ JAZYK PRE INFORMATIKOV:**  
Veda a výskum, informatika  
Život s počítačom  
Typický PC  
Zdravie a bezpečnosť, ergonómika  
Programovanie  
Emailovanie  
Cybercrime  
Trendy budúcnosti

**Recommended literature:**

študijné materiály dodané vyučujúcim

Velebná, V. English for Chemists.

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

Powel, M.: Dynamic Presentations. CUP, 2010

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.

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

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

**Course language:****Notes:****Course assessment**

Total number of assessed students: 2010

A	B	C	D	E	FX
31.44	25.82	18.71	11.59	9.65	2.79

**Provides:** PaedDr. Gabriela Bednáriková, Mgr. Marianna Škultétyová, Mgr. Zuzana Naďová, PhDr. Helena Petruňová, CSc.

**Date of last modification:** 01.09.2016

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

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚMV/ GEO2a/15	<b>Course name:</b> Geometry I
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 3 / 2 <b>Per study period:</b> 42 / 28 <b>Course method:</b> present	
<b>Number of credits:</b> 5	
<b>Recommended semester/trimester of the course:</b> 6.	
<b>Course level:</b> I.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b> 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	
<b>Learning outcomes:</b> To acquaint students with the analytical geometry of linear and quadratic figures in Affine and Euclidean space.	
<b>Brief outline of the course:</b> 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.	
<b>Recommended literature:</b> 1. M.Sekanina, L.Boček, M.Kočandrle, 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 Internetě.					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 88					
A	B	C	D	E	FX
17.05	12.5	21.59	18.18	19.32	11.36
<b>Provides:</b> doc. RNDr. Dušan Šveda, CSc., Mgr. Lucia Janičková					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> KFaDF/DF2p/03		<b>Course name:</b> History of Philosophy 2 (General Introduction)			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 1 <b>Per study period:</b> 28 / 14 <b>Course method:</b> present					
<b>Number of credits:</b> 4					
<b>Recommended semester/trimester of the course:</b> 6.					
<b>Course level:</b> I., II.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 731					
A	B	C	D	E	FX
60.6	13.82	12.72	8.76	3.42	0.68
<b>Provides:</b> doc. PhDr. Pavol Tholt, PhD., mim. prof., Doc. PhDr. Peter Nezník, CSc., PhDr. Katarína Mayerová, PhD., Mgr. Róbert Stojka, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ IKTP/15		<b>Course name:</b> Information and Communication Technologies			
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 3., 5.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b> 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".					
<b>Learning outcomes:</b> To achieve and extend fundamental information and communication knowledge to the level which is acceptable in the EU region.					
<b>Brief outline of the course:</b> 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.					
<b>Recommended literature:</b> 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: Sylabus ECDL verzia 5.0. [on-line] [citované 9.2.2010]. Dostupné na internete: < <a href="http://www.ecdl.sk/buxus/docs//interne_informacie/Sylabus_V5.0/20090630ECDL-SylabusV50_SK-V01_FIN.pdf">http://www.ecdl.sk/buxus/docs//interne_informacie/Sylabus_V5.0/20090630ECDL-SylabusV50_SK-V01_FIN.pdf</a> >.					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 991					
A	B	C	D	E	FX
66.2	17.66	6.96	3.53	1.72	3.94
<b>Provides:</b> Mgr. Alexander Szabari, PhD., doc. RNDr. Ľubomír Šnajder, PhD.					

<b>Date of last modification:</b> 03.05.2015
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ IBdi/15		<b>Course name:</b> Information security principles			
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 3					
<b>Recommended semester/trimester of the course:</b> 4., 6.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 18					
A	B	C	D	E	FX
22.22	22.22	22.22	5.56	5.56	22.22
<b>Provides:</b> RNDr. JUDr. Pavol Sokol, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ UGR1/15		<b>Course name:</b> Introduction to computer graphics			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 1 <b>Per study period:</b> 28 / 14 <b>Course method:</b> present					
<b>Number of credits:</b> 5					
<b>Recommended semester/trimester of the course:</b> 3.					
<b>Course level:</b> I., II.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b> To provide the students with knowledge of graphics algorithms and basic principles of computer graphics.					
<b>Brief outline of the course:</b> 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.					
<b>Recommended literature:</b> 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					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 238					
A	B	C	D	E	FX
13.03	8.4	13.03	23.95	31.93	9.66
<b>Provides:</b> doc. RNDr. Gabriel Semanišin, PhD., RNDr. Rastislav Krivoš-Belluš, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚMV/ UAD/10	<b>Course name:</b> Introduction to data analysis
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 1 / 1 <b>Per study period:</b> 14 / 14 <b>Course method:</b> present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b> 3.	
<b>Course level:</b> I.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b> Test and individual project work. Oral presentation of the individual project work.	
<b>Learning outcomes:</b> 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-Excel.	
<b>Brief outline of the course:</b> 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, relationships in data – introduction to regression and correlation) 4. Statistical inference (elementary view into estimation and testing hypothesis)	
<b>Recommended literature:</b> 1. Anděl, J.: Statistické metody, Matfyzpress, Praha, 1998 (in Czech) 2. Heiberger, R.M., Neuwirth, E.: R Through Excel: A Spreadsheet Interface for Statistics, Data Analysis, and Graphics, Springer, 2009 3. Rossman, A.J.: Workshop Statistics: Discovery with Data and Fathom, 3rd ed. Wiley, 2009 4. Utts, J.M.: Seeing Through Statistics, Thomson Brooks/Cole, Belmont, 2005 5. Utts, J.M., Heckard R.F.: Mind on Statistics, 3rd ed. Thomson Brooks/Cole, Belmont, 2007 6. Zvára, K., Štěpán, J.: Pravděpodobnost a matematická statistika, Matfyzpress, Praha, 2001 (in Czech)	
<b>Course language:</b> Slovak	
<b>Notes:</b>	

<b>Course assessment</b>					
Total number of assessed students: 220					
A	B	C	D	E	FX
30.0	26.82	32.27	10.45	0.0	0.45
<b>Provides:</b> doc. RNDr. Ivan Žežula, CSc., RNDr. Martina Hančová, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚMV/ UDM/10	<b>Course name:</b> Introduction to mathematics
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 1 / 2 <b>Per study period:</b> 14 / 28 <b>Course method:</b> present	
<b>Number of credits:</b> 3	
<b>Recommended semester/trimester of the course:</b> 1.	
<b>Course level:</b> I.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b> Two tests during the semester.	
<b>Learning outcomes:</b> Repetition of problematic sections of the secondary mathematics by interesting tasks.	
<b>Brief outline of the course:</b> 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.	
<b>Recommended literature:</b> 1. V. Medek - L. Mišík - T. Šalát: REPETITÓRIUM STREDOŠKOLSKÉJ 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	
<b>Course language:</b> Slovak	
<b>Notes:</b>	

<b>Course assessment</b>					
Total number of assessed students: 373					
A	B	C	D	E	FX
22.79	12.06	16.89	15.82	19.3	13.14
<b>Provides:</b> doc. RNDr. Matúš Harminec, CSc., Mgr. Lucia Janičková, Mgr. Tadeáš Gavala, RNDr. Veronika Hubeňáková, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/UNS1/15		<b>Course name:</b> Introduction to neural networks			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 1 <b>Per study period:</b> 28 / 14 <b>Course method:</b> present					
<b>Number of credits:</b> 5					
<b>Recommended semester/trimester of the course:</b> 3.					
<b>Course level:</b> I., II.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b> To understand and to know applications of basic paradigms of neural networks. To learn working with software for neural network models.					
<b>Brief outline of the course:</b> 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.					
<b>Recommended literature:</b> 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					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 346					
A	B	C	D	E	FX
8.09	15.9	23.99	21.1	26.3	4.62
<b>Provides:</b> doc. RNDr. Gabriela Andrejková, CSc.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ UIN1/15		<b>Course name:</b> Introduction to study of informatics			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 2 <b>Per study period:</b> 28 / 28 <b>Course method:</b> present					
<b>Number of credits:</b> 5					
<b>Recommended semester/trimester of the course:</b> 1.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 124					
A	B	C	D	E	FX
21.77	18.55	25.0	15.32	4.84	14.52
<b>Provides:</b> doc. RNDr. Stanislav Krajči, PhD., RNDr. Ondrej Křídlo, PhD., Mgr. Alexander Szabari, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajči, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> Dek. PF UPJŠ/USPV/13	<b>Course name:</b> Introduction to Study of Sciences
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week: Per study period:</b> 12s / 3d <b>Course method:</b> present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b> 1.	
<b>Course level:</b> I.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b>	
<b>Learning outcomes:</b>	
<b>Brief outline of the course:</b>	
<b>Recommended literature:</b>	
<b>Course language:</b>	
<b>Notes:</b>	
<b>Course assessment</b> Total number of assessed students: 733	
abs	n
96.32	3.68
<b>Provides:</b> doc. RNDr. Mária Kožurková, CSc., prof. RNDr. Katarína Cechlárová, DrSc., prof. RNDr. Beňadik Šmajda, CSc., prof. Mgr. Jaroslav Hofierka, PhD., doc. RNDr. Ivan Žežula, CSc., doc. RNDr. Vladimír Zelenák, PhD., doc. RNDr. Jozef Hanč, PhD., RNDr. Ondrej Krídlo, PhD., Mgr. Vladislav Kolarčík, PhD., RNDr. Janetta Nestorová-Dická, PhD.	
<b>Date of last modification:</b> 03.05.2015	
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.	

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ LCO/10		<b>Course name:</b> Linear and integer programming			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 2 <b>Per study period:</b> 28 / 28 <b>Course method:</b> present					
<b>Number of credits:</b> 5					
<b>Recommended semester/trimester of the course:</b>					
<b>Course level:</b> I.					
<b>Prerequisites:</b> ÚMV/ALGa/10					
<b>Conditions for course completion:</b> Two tests, using software CASSIM, oral exam					
<b>Learning outcomes:</b> To learn the solving methods of linear programming					
<b>Brief outline of the course:</b> 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.					
<b>Recommended literature:</b> Ch. Papadimitriou – K. Steiglitz: Combinatorial Optimization: Algorithms and Complexity, 1984 R.J. Vanderbei, Linear Programming: Foundations and Extensions (Kluwer 2001), electronic version: <a href="http://www.princeton.edu/~rvdb/LPbook/">http://www.princeton.edu/~rvdb/LPbook/</a>					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 130					
A	B	C	D	E	FX
21.54	13.08	22.31	21.54	20.77	0.77
<b>Provides:</b> doc. RNDr. Roman Soták, PhD., Mgr. Andrej Gajdoš					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ LTM/10		<b>Course name:</b> Logic and set theory			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 3 / 2 <b>Per study period:</b> 42 / 28 <b>Course method:</b> present					
<b>Number of credits:</b> 6					
<b>Recommended semester/trimester of the course:</b> 5.					
<b>Course level:</b> I.					
<b>Prerequisites:</b> ÚMV/MANb/10					
<b>Conditions for course completion:</b> Exam					
<b>Learning outcomes:</b> To obtain a basic knowledge on the mathematical notion of an infinity. Analysis of the notion of a proof.					
<b>Brief outline of the course:</b> 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. Completness Theorem. Methods of proofs. Language of predicate calculus, examples. Axiomatizations of predicate calculus and the notion of a proof. Methods of proofs in predicate calculus.					
<b>Recommended literature:</b> E. Mendelson, Introduction to Mathematical Logic, van Nostrand 1964.					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 509					
A	B	C	D	E	FX
12.57	16.11	20.04	24.75	15.91	10.61
<b>Provides:</b> RNDr. Jaroslav Šupina, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ MAE/10		<b>Course name:</b> Macroeconomics			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 1 <b>Per study period:</b> 28 / 14 <b>Course method:</b> present					
<b>Number of credits:</b> 4					
<b>Recommended semester/trimester of the course:</b> 5.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b> 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.					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b> 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. Phillips curve, Okun law. Inflation and economic growth. High depth.					
<b>Recommended literature:</b> 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					
<b>Course language:</b> Slovak and English					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 59					
A	B	C	D	E	FX
18.64	15.25	23.73	22.03	13.56	6.78
<b>Provides:</b> prof. RNDr. Katarína Cechlárová, DrSc.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ MANa/10		<b>Course name:</b> Mathematical analysis I			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 3 / 3 <b>Per study period:</b> 42 / 42 <b>Course method:</b> present					
<b>Number of credits:</b> 7					
<b>Recommended semester/trimester of the course:</b> 1.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b> Two written test during semester and activity student to practice. Final evaluation is given by continuous assessment, written and oral part of the exam.					
<b>Learning outcomes:</b> The aim of the course is to give introductory knowledge about real numbers, sequences and series of real numbers, and to develop certain calculation skills in the field.					
<b>Brief outline of the course:</b> Real numbers - axioms and properties. Real functions - basic properties (monotone, bounded, even/odd, inverse), transformations of graphs of functions. Infinite sequences - operations, boundedness, monotonicity, convergence. Infinite series - operations, convergence, criteria of convergence.					
<b>Recommended literature:</b> 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.					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 1287					
A	B	C	D	E	FX
6.22	7.69	12.12	13.36	34.73	25.87
<b>Provides:</b> doc. RNDr. Ondrej Hutník, PhD., RNDr. Lenka Halčinová, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ MANb/10		<b>Course name:</b> Mathematical analysis II			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 4 / 3 <b>Per study period:</b> 56 / 42 <b>Course method:</b> present					
<b>Number of credits:</b> 8					
<b>Recommended semester/trimester of the course:</b> 2.					
<b>Course level:</b> I.					
<b>Prerequisites:</b> ÚMV/MANa/10					
<b>Conditions for course completion:</b> Two written test during semester and activity student to practice. Final evaluation is given by continuous assessment, written and oral part of the exam.					
<b>Learning outcomes:</b> The purpose of the course is to provide introductory knowledge in differential and integral calculus of real functions of one real variable and to develop computational skills in the field.					
<b>Brief outline of the course:</b> 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. Indefinite integral - basic methods for finding primitive functions. Newton integral and its basic properties.					
<b>Recommended literature:</b> 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.					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 811					
A	B	C	D	E	FX
8.38	8.26	12.21	18.74	36.25	16.15
<b>Provides:</b> doc. RNDr. Ondrej Hutník, PhD., RNDr. Lenka Halčinová, PhD.					
<b>Date of last modification:</b> 03.05.2015					

<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.
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## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚMV/ MAN2c/10	<b>Course name:</b> Mathematical analysis III
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 2 <b>Per study period:</b> 28 / 28 <b>Course method:</b> present	
<b>Number of credits:</b> 5	
<b>Recommended semester/trimester of the course:</b> 3.	
<b>Course level:</b> I.	
<b>Prerequisites:</b> ÚMV/MANb/10	
<b>Conditions for course completion:</b> Two written test during semester and activity student to practice. Final evaluation is given by continuous assessment, written and oral part of the exam.	
<b>Learning outcomes:</b> 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 matter in the syllabus and develop the ability to use this theory.	
<b>Brief outline of the course:</b> 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.	
<b>Recommended literature:</b> 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.	
<b>Course language:</b> Slovak	
<b>Notes:</b>	

<b>Course assessment</b>					
Total number of assessed students: 620					
A	B	C	D	E	FX
7.1	6.77	12.58	18.39	43.23	11.94
<b>Provides:</b> doc. RNDr. Ondrej Hutník, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ MAN1d/10		<b>Course name:</b> Mathematical analysis IV			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 4 / 2 <b>Per study period:</b> 56 / 28 <b>Course method:</b> present					
<b>Number of credits:</b> 7					
<b>Recommended semester/trimester of the course:</b>					
<b>Course level:</b> I.					
<b>Prerequisites:</b> ÚMV/MAN1c/10 or ÚMV/MAN2c/10					
<b>Conditions for course completion:</b> exam					
<b>Learning outcomes:</b> Understanding of the basic rigorous ideas of Mathematical Analysis.					
<b>Brief outline of the course:</b> 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.					
<b>Recommended literature:</b> 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. Т. А. Леонтьева, В. С. Панферов, В. С. Серов: Задачи по теории функций действительного переменного, Издательство Московского университета, Москва, 1997.					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 212					
A	B	C	D	E	FX
3.77	4.72	13.68	22.64	42.45	12.74
<b>Provides:</b> prof. RNDr. Jozef Doboš, CSc., RNDr. Jaroslav Šupina, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚMV/ MAN2d/10	<b>Course name:</b> Mathematical analysis IV
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 2 <b>Per study period:</b> 28 / 28 <b>Course method:</b> present	
<b>Number of credits:</b> 5	
<b>Recommended semester/trimester of the course:</b> 4.	
<b>Course level:</b> I.	
<b>Prerequisites:</b> ÚMV/MANb/10	
<b>Conditions for course completion:</b> 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%).	
<b>Learning outcomes:</b> 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.	
<b>Brief outline of the course:</b> 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.	
<b>Recommended literature:</b> 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 Brně, 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 Praze, Praha, 1997. 7. J. Eliaš, J. Horváth, J. Kajan: Zbierka úloh z vyššej matematiky 3, 4, SVTL, Bratislava, 1966 (in Slovak).	
<b>Course language:</b> Slovak	
<b>Notes:</b>	

<b>Course assessment</b>					
Total number of assessed students: 282					
A	B	C	D	E	FX
8.51	9.57	17.73	19.86	34.75	9.57
<b>Provides:</b> RNDr. Lenka Halčinová, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/MRUa/15		<b>Course name:</b> Mathematical problem solving strategies I			
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 4.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b> Evaluation will be awarded on the basis of continuous assessment and final test.					
<b>Learning outcomes:</b> 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.					
<b>Brief outline of the course:</b> Basic knowledge of school mathematics, different strategy of problem solution, problems from mathematical competitions concerning Equations and inequalities and their systems, Functions, Financial Mathematics.					
<b>Recommended literature:</b> [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)					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 121					
A	B	C	D	E	FX
31.4	23.97	23.14	11.57	9.09	0.83
<b>Provides:</b> doc. RNDr. Stanislav Lukáč, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/MRUB/15		<b>Course name:</b> Mathematical problem solving strategies II			
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 5.					
<b>Course level:</b> I.					
<b>Prerequisites:</b> ÚMV/MRUa/15					
<b>Conditions for course completion:</b> 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.					
<b>Learning outcomes:</b> 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.					
<b>Brief outline of the course:</b> Basic knowledge of school mathematics, various methods for the task, the role of mathematical competitions for thematic units Planimetry, stereometry, goniometry.					
<b>Recommended literature:</b> [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					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 93					
A	B	C	D	E	FX
36.56	10.75	33.33	11.83	7.53	0.0
<b>Provides:</b> doc. RNDr. Dušan Šveda, CSc.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/MRUc/15		<b>Course name:</b> Mathematical problem solving strategies III			
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 6.					
<b>Course level:</b> I.					
<b>Prerequisites:</b> ÚMV/MRUb/15					
<b>Conditions for course completion:</b> 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.					
<b>Learning outcomes:</b> 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.					
<b>Brief outline of the course:</b> Basic knowledge of school mathematics, from the topics: combinatorics, probability and statistics.					
<b>Recommended literature:</b> 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)					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 97					
A	B	C	D	E	FX
25.77	35.05	22.68	10.31	6.19	0.0
<b>Provides:</b> RNDr. Ingrid Semanišinová, PhD.					
<b>Date of last modification:</b> 03.05.2015					

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

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ MTM/14		<b>Course name:</b> Mathematics			
<b>Course type, scope and the method:</b> <b>Course type:</b> <b>Recommended course-load (hours):</b> <b>Per week: Per study period:</b> <b>Course method:</b> present					
<b>Number of credits:</b> 1					
<b>Recommended semester/trimester of the course:</b>					
<b>Course level:</b> I.					
<b>Prerequisites:</b> ÚMV/MAN2c/10 and ÚMV/ALG2b/10 and ÚMV/ATC/10					
<b>Conditions for course completion:</b> Acquiring the required number of credits in the structure defined by the study plan.					
<b>Learning outcomes:</b> Evaluation of student's competences with respect to the profile of the graduate.					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 13					
A	B	C	D	E	FX
23.08	23.08	23.08	30.77	0.0	0.0
<b>Provides:</b>					
<b>Date of last modification:</b> 21.05.2016					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ RIM1/15		<b>Course name:</b> Metódy riešenia informatických úloh			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 0 / 2 <b>Per study period:</b> 0 / 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 1.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 0					
A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0
<b>Provides:</b> doc. RNDr. Stanislav Krajčí, PhD., RNDr. Rastislav Krivoš-Belluš, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ MIE/13		<b>Course name:</b> Microeconomics			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 1 <b>Per study period:</b> 28 / 14 <b>Course method:</b> present					
<b>Number of credits:</b> 4					
<b>Recommended semester/trimester of the course:</b> 5.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b> The minimum necessary number of points from tests written during semester is 50%, plus the ability of verbal argumentation in the final oral exam.					
<b>Learning outcomes:</b> Understanding of basic principles of microeconomics and ability to apply them in practical situations.					
<b>Brief outline of the course:</b> Economics and economy. Supply and demand. Consumer Theory. Theory of firm. Perfect competition. Monopoly. Labour market. Market failure. Externalities and Public goods.					
<b>Recommended literature:</b> 1. <a href="http://umv.science.upjs.sk/cechlarova/MIE/MIE.htm">http://umv.science.upjs.sk/cechlarova/MIE/MIE.htm</a> - 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 Edition, Addison Wesley, 2012 4. J. Sloman, Economics, 6th Edition, Prentice Hall, 2006					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 64					
A	B	C	D	E	FX
26.56	18.75	20.31	20.31	12.5	1.56
<b>Provides:</b> prof. RNDr. Katarína Cechlárová, DrSc., RNDr. Veronika Kopčová					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚTVŠ/ NJ//13	<b>Course name:</b> Naval Yachting
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 36 <b>Per study period:</b> 504 <b>Course method:</b> present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b>	
<b>Course level:</b> I., II.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b>	
<b>Learning outcomes:</b>	
<b>Brief outline of the course:</b>	
<b>Recommended literature:</b>	
<b>Course language:</b>	
<b>Notes:</b>	
<b>Course assessment</b> Total number of assessed students: 2	
abs	n
100.0	0.0
<b>Provides:</b> doc. Mgr. Rastislav Feč, PhD.	
<b>Date of last modification:</b> 03.05.2015	
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.	

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/TCS/10		<b>Course name:</b> Number theory			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture <b>Recommended course-load (hours):</b> <b>Per week: 2 Per study period: 28</b> <b>Course method:</b> present					
<b>Number of credits:</b> 3					
<b>Recommended semester/trimester of the course:</b> 5.					
<b>Course level:</b> I.					
<b>Prerequisites:</b> ÚMV/ATC/10					
<b>Conditions for course completion:</b> According to tests and exam.					
<b>Learning outcomes:</b> To obtain knowledge on quadratic congruences.					
<b>Brief outline of the course:</b> Chinese remainder theorem, Euler function, quadratic congruences, Pythagorean equation.					
<b>Recommended literature:</b> M. B. Nathanson: Elementary Methods in Number Theory. Springer, 2000. H. E. Rose: A Course in Number Theory. Clarendon Press, Oxford, 1994.					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 529					
A	B	C	D	E	FX
26.28	27.6	29.87	11.15	2.65	2.46
<b>Provides:</b> doc. RNDr. Matúš Harminc, CSc.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ OSY1/15		<b>Course name:</b> Operating systems			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 0 <b>Per study period:</b> 28 / 0 <b>Course method:</b> present					
<b>Number of credits:</b> 3					
<b>Recommended semester/trimester of the course:</b> 3.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 138					
A	B	C	D	E	FX
26.09	10.14	18.84	18.12	18.84	7.97
<b>Provides:</b> doc. Ing. Štefánia Gallová, CSc., RNDr. PhDr. Peter Pisarčík					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> KPE/ Pg/15		<b>Course name:</b> Pedagogy			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 3., 5.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 67					
A	B	C	D	E	FX
40.3	16.42	19.4	7.46	14.93	1.49
<b>Provides:</b> PaedDr. Renáta Orosová, PhD., Mgr. Zuzana Boberová, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> KPPaPZ/PP/15		<b>Course name:</b> Positive Psychology			
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 4., 6.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 14					
A	B	C	D	E	FX
85.71	7.14	0.0	0.0	7.14	0.0
<b>Provides:</b> Mgr. Jozef Benka, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ PRP2/15		<b>Course name:</b> Principles of computers			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 1 <b>Per study period:</b> 28 / 14 <b>Course method:</b> present					
<b>Number of credits:</b> 4					
<b>Recommended semester/trimester of the course:</b> 2.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 74					
A	B	C	D	E	FX
39.19	17.57	14.86	17.57	10.81	0.0
<b>Provides:</b> doc. Ing. Štefánia Gallová, CSc., RNDr. Juraj Šebej					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ PSTa/10		<b>Course name:</b> Probability and statistics I			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 2 <b>Per study period:</b> 28 / 28 <b>Course method:</b> present					
<b>Number of credits:</b> 5					
<b>Recommended semester/trimester of the course:</b> 4.					
<b>Course level:</b> I.					
<b>Prerequisites:</b> ÚMV/MAN1c/10 or ÚMV/MAN2c/10					
<b>Conditions for course completion:</b> To obtain in two written tests during the semester at least 50%. Based on written tests and oral exam.					
<b>Learning outcomes:</b> To provide a grounding in axiomatic theory of probability, random variables and their characteristics, special types of distributions and their applications.					
<b>Brief outline of the course:</b> 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.					
<b>Recommended literature:</b> 1. Skřivánková V.: Probability and Statistics, UPJŠ, Košice, 2009 2. Dekking at al.: A Modern Introduction to Probability and Statistics, Springer, 2005. 3. Pfeiffer P.E.: Probability for Applications, Springer, New York, 1990. 4. Ross S.M.: Introduction to Probabability Models, Elsevier, 2007.					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 283					
A	B	C	D	E	FX
7.42	14.49	16.25	25.09	25.09	11.66
<b>Provides:</b> doc. RNDr. Valéria Skřivánková, CSc., RNDr. Martina Hančová, PhD.					

<b>Date of last modification:</b> 03.05.2015
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ PSTb/10		<b>Course name:</b> Probability and statistics II			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 2 <b>Per study period:</b> 28 / 28 <b>Course method:</b> present					
<b>Number of credits:</b> 5					
<b>Recommended semester/trimester of the course:</b>					
<b>Course level:</b> I., II.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b> To obtain in two written tests during the semester at least 50%. Total evaluation based on written tests and oral exam.					
<b>Learning outcomes:</b> To provide a grounding in statistical methods and their applications for real life problems.					
<b>Brief outline of the course:</b> 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.					
<b>Recommended literature:</b> 1. Skřivánková V.: Probability and statistics, UPJŠ, Košice, 2009. 2. Dekking at al.: A modern Introduction to Probability and Statistics. Springer, 2005. 3. Sincich T.: Statistics by example, Dellen Publishing Company, New Jersey, 1990.					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 160					
A	B	C	D	E	FX
18.13	21.25	19.38	24.38	11.88	5.0
<b>Provides:</b> doc. RNDr. Valéria Skřivánková, CSc., RNDr. Martina Hančová, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚINF/ PAZ1a/15	<b>Course name:</b> Programming, algorithms, and complexity
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 3 / 4 <b>Per study period:</b> 42 / 56 <b>Course method:</b> present	
<b>Number of credits:</b> 8	
<b>Recommended semester/trimester of the course:</b> 1.	
<b>Course level:</b> I., II.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b> Get a prescribed minimum number of points for activities of continuous assessment and for solving tasks during final practical test.	
<b>Learning outcomes:</b>	
<b>Brief outline of the course:</b> 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.	
<b>Recommended literature:</b> 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	
<b>Course language:</b> Slovak language, english language is required only to read Java API documentation.	
<b>Notes:</b>	

<b>Course assessment</b>					
Total number of assessed students: 474					
A	B	C	D	E	FX
16.03	7.81	12.45	15.82	12.87	35.02
<b>Provides:</b> RNDr. Peter Gurský, PhD., RNDr. František Galčík, PhD., Mgr. Matej Nikorovič, RNDr. Ľubomír Antoni, PhD., RNDr. Zuzana Bednářová, PhD., Mgr. Miroslav Opiela, RNDr. Juraj Šebej					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚINF/ PAZ1b/15	<b>Course name:</b> Programming, algorithms, and complexity
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 4 <b>Per study period:</b> 28 / 56 <b>Course method:</b> present	
<b>Number of credits:</b> 7	
<b>Recommended semester/trimester of the course:</b> 2.	
<b>Course level:</b> I., II.	
<b>Prerequisites:</b> ÚINF/PAZ1a/15	
<b>Conditions for course completion:</b> 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.	
<b>Learning outcomes:</b>	
<b>Brief outline of the course:</b> 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.	
<b>Recommended literature:</b> 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.	
<b>Course language:</b> Slovak language, literature is available in english and czech language.	
<b>Notes:</b>	

<b>Course assessment</b>					
Total number of assessed students: 1039					
A	B	C	D	E	FX
11.55	6.16	9.72	20.6	23.68	28.3
<b>Provides:</b> doc. RNDr. Gabriela Andrejková, CSc., RNDr. František Galčík, PhD., PaedDr. Ján Guniš, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚINF/ PAZ1c/15	<b>Course name:</b> Programming, algorithms, and complexity
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 4 <b>Per study period:</b> 56 <b>Course method:</b> present	
<b>Number of credits:</b> 5	
<b>Recommended semester/trimester of the course:</b> 5.	
<b>Course level:</b> I., II.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b>	
<b>Learning outcomes:</b> Gain skills to design and implement complex application with three-layer architecture and well-known design patterns.	
<b>Brief outline of the course:</b> <ol style="list-style-type: none"> <li>1. Food vending machine as an example of small project. Class identification. Use-cases. Method and instance variable identification. Unit testing in JUnit.</li> <li>2. Designing CRUD application. Quote Database application example. Entity identification and design. Entity identity. Designing interfaces for Data Access Objects and demo implementation. Three-layered architecture.</li> <li>3. Business logics in classes. Designing a simple layered application. Class relationships with static association. Pros and cons in hardwired associations.</li> <li>4. Implementing Factory design pattern as an abstraction of hardwired association. Examples and usage of factory. Briefly about MVC design pattern. Models and view in Swing. Model examples: static, dynamic, refreshing model.</li> <li>5. Interface as a contract between client and class. Contract in code: input and output parameters, exceptions. Preconditions, postconditions, invariants. Favouring interface over implementation. Inheritance vs composition dilemma. Pros and cons of inheritance, choosing a suitable inheritance candidate. Favouring composition over inheritance.</li> <li>6. Encapsulation: definition and real use. Best practices for enforcing encapsulation. More about pros and cons of inheritance with examples. Liskov Substitution principle. Delegation as a hybrid between inheritance and composition.</li> <li>7. Associations between classes. Cardinalities: 1:1, 1:M, 1:N. Design and realization in the code.</li> <li>8. Exceptions: designing exceptions, exceptions classes and best practices. Three types of exception handling. Logging with default tools and with 'slf4j' library. Logging best practices.</li> <li>9. Service classes: two design approaches. Configuration vs input parameters.</li> <li>10. Database access with Spring JDBC Template. Mapping objects and relationships.</li> </ol>	
<b>Recommended literature:</b> SIERRA, K., BATES, B.: Head First Java (2nd Edition), 2005 ECKEL, B.: Thinking in Java (4th Edition), 2006	

<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b>					
Total number of assessed students: 252					
A	B	C	D	E	FX
36.11	20.63	16.27	11.51	10.32	5.16
<b>Provides:</b> RNDr. Róbert Novotný, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/SPP1a/15		<b>Course name:</b> Programming environments in schools			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 2 <b>Per study period:</b> 28 / 28 <b>Course method:</b> present					
<b>Number of credits:</b> 4					
<b>Recommended semester/trimester of the course:</b> 3.					
<b>Course level:</b> I.					
<b>Prerequisites:</b> ÚINF/PAZ1a/15					
<b>Conditions for course completion:</b> Creation of educational project in selected children's programming environment (Imagine Logo, Lazarus). Designing and presentation of graded tasks collection in selected children's programming environment.					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 258					
A	B	C	D	E	FX
35.66	20.54	16.28	11.63	10.85	5.04
<b>Provides:</b> doc. RNDr. Gabriela Andrejková, CSc., doc. RNDr. Ľubomír Šnajder, PhD., PaedDr. Ján Guniš, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚINF/ PRS/15	<b>Course name:</b> Programming of robotic kits
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 3 <b>Per study period:</b> 42 <b>Course method:</b> present	
<b>Number of credits:</b> 3	
<b>Recommended semester/trimester of the course:</b> 4.	
<b>Course level:</b> I.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b> Assessment of individual work on computers for a number of sub-assignments - robotic mini-project. Creating and presenting a programmed robotic model including documentation.	
<b>Learning outcomes:</b> 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.	
<b>Brief outline of the course:</b> 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.	
<b>Recommended literature:</b> 1. BUMGARDNER, J. (2007) The Origins of Mindstorms. Wired, 2007. <a href="http://www.wired.com/geekdad/2007/03/the_origins_of_/">http://www.wired.com/geekdad/2007/03/the_origins_of_/</a> 2. Carnegie Mellon. Robotics Academy. <a href="http://www.education.rec.ri.cmu.edu/">http://www.education.rec.ri.cmu.edu/</a> 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. <a href="https://lego.zcu.cz/web/">https://lego.zcu.cz/web/</a>	
<b>Course language:</b>	
<b>Notes:</b>	

<b>Course assessment</b>					
Total number of assessed students: 37					
A	B	C	D	E	FX
48.65	18.92	16.22	2.7	0.0	13.51
<b>Provides:</b> doc. RNDr. Ľubomír Šnajder, PhD., PaedDr. Ján Guniš, PhD., RNDr. Jozef Studenovský, CSc.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚINF/ PSW1/06	<b>Course name:</b> Programming of web-pages
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b> 4.	
<b>Course level:</b> I.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b> Evaluation of partial assignments. The secure dynamic web applications using JavaScript, PHP, MySQL.	
<b>Learning outcomes:</b> 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.	
<b>Brief outline of the course:</b> 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.	
<b>Recommended literature:</b> 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: <a href="https://www.owasp.org/index.php/Main_Page">https://www.owasp.org/index.php/Main_Page</a>	
<b>Course language:</b> slovak	
<b>Notes:</b>	

<b>Course assessment</b>					
Total number of assessed students: 179					
A	B	C	D	E	FX
8.94	7.82	7.26	7.82	23.46	44.69
<b>Provides:</b> doc. RNDr. Ľubomír Šnajder, PhD., PaedDr. Ján Guniš, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚINF/ PBS/15	<b>Course name:</b> Pro-seminar to bachelor thesis
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 1 <b>Per study period:</b> 14 <b>Course method:</b> present	
<b>Number of credits:</b> 1	
<b>Recommended semester/trimester of the course:</b> 4.	
<b>Course level:</b> I.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b>	
<b>Learning outcomes:</b>	
<b>Brief outline of the course:</b>	
<b>Recommended literature:</b>	
<b>Course language:</b>	
<b>Notes:</b>	
<b>Course assessment</b> Total number of assessed students: 206	
abs	n
91.26	8.74
<b>Provides:</b> RNDr. Ľubomír Antoni, PhD., RNDr. Ondrej Krídlo, PhD.	
<b>Date of last modification:</b> 03.05.2015	
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.	

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> KPPaPZ/Ps/15		<b>Course name:</b> Psychology			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 1., 3., 5.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 43					
A	B	C	D	E	FX
4.65	6.98	37.21	25.58	9.3	16.28
<b>Provides:</b> Prof. PhDr. Oľga Orosová, CSc., PhDr. Anna Janovská, PhD., Mgr. Lucia Hricová, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> KPPaPZ/PKŽ/15		<b>Course name:</b> Psychology of Everyday Life			
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 3.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 32					
A	B	C	D	E	FX
40.63	28.13	25.0	6.25	0.0	0.0
<b>Provides:</b> Mgr. Ondrej Kalina, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚTVŠ/ ÚTVŠ/CM/13	<b>Course name:</b> Seaside Aerobic Exercise
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 36 <b>Per study period:</b> 504 <b>Course method:</b> present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b>	
<b>Course level:</b> I., II.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b>	
<b>Learning outcomes:</b>	
<b>Brief outline of the course:</b>	
<b>Recommended literature:</b>	
<b>Course language:</b>	
<b>Notes:</b>	
<b>Course assessment</b> Total number of assessed students: 7	
abs	n
57.14	42.86
<b>Provides:</b> Mgr. Alena Buková, PhD., Mgr. Agata Horbacz, PhD.	
<b>Date of last modification:</b> 03.05.2015	
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.	

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ VKA/10		<b>Course name:</b> Selected topics in algebra			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 1 <b>Per study period:</b> 28 / 14 <b>Course method:</b> present					
<b>Number of credits:</b> 4					
<b>Recommended semester/trimester of the course:</b> 6.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b> According to tests and to the exam.					
<b>Learning outcomes:</b> To obtain basic knowledge on universal algebra; to be able to apply the theory in concrete situations.					
<b>Brief outline of the course:</b> Relations, operations, algebraic structures. Substructures. Congruences, homomorphism theorems. Automorphism groups and endomorphism monoids. Terms, term operations, identities, varieties.					
<b>Recommended literature:</b> B. Jónsson: Topics in Universal Algebra, Springer-Verlag 1972 M. Kolibiar a kol.: Algebra a príbuzné disciplíny, Bratislava 1992					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 86					
A	B	C	D	E	FX
5.81	18.6	25.58	26.74	20.93	2.33
<b>Provides:</b> prof. RNDr. Danica Studenovská, CSc.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ VEM/10		<b>Course name:</b> Selected topics in elementary mathematics			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 1 / 1 <b>Per study period:</b> 14 / 14 <b>Course method:</b> present					
<b>Number of credits:</b> 3					
<b>Recommended semester/trimester of the course:</b> 5.					
<b>Course level:</b> I.					
<b>Prerequisites:</b> ÚMV/MAN2c/10					
<b>Conditions for course completion:</b> exam					
<b>Learning outcomes:</b> Obtain knowledge about the structure of elementary mathematics with respect to advanced mathematics; the development of mathematical skills of prospective teachers.					
<b>Brief outline of the course:</b> Language of Mathematics; syntax and semantics; sets, relations, rational and irrational numbers, equations and inequations in reals; elementary functions					
<b>Recommended literature:</b> W.W. Esty: The Language of Mathematics, Montana State University, 2007. F. Klein: Elementary mathematics from an advanced standpoint, Dower Publications, 1945.					
<b>Course language:</b> Slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 175					
A	B	C	D	E	FX
20.57	17.14	18.86	17.71	23.43	2.29
<b>Provides:</b> prof. RNDr. Jozef Doboš, CSc.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ VKI/15		<b>Course name:</b> Selected topics in informatics and information technologies			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 2 <b>Per study period:</b> 28 / 28 <b>Course method:</b> present					
<b>Number of credits:</b> 4					
<b>Recommended semester/trimester of the course:</b> 1.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b> Problems solved during the semester. Examination.					
<b>Learning outcomes:</b> 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.					
<b>Brief outline of the course:</b> 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.					
<b>Recommended literature:</b> Aho A.V., Hopcroft J.E., Ullman J.D.: The design and analysis of algorithms. Addison-Wesley Publishing Company, 1974.					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 0					
A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0
<b>Provides:</b> RNDr. Zuzana Bednárová, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

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

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/BSI1a/15		<b>Course name:</b> Seminar in informatics			
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 5.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b> Presentation of algorithms for problems of a higher complexity. Presentation of results connecting to the bachelor theses, known and own results.					
<b>Learning outcomes:</b> To inform students about new results in informatics with the goal using them in bachelor theses.					
<b>Brief outline of the course:</b> 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.					
<b>Recommended literature:</b> Sources of problems: <a href="http://www.ksp.sk">www.ksp.sk</a> <a href="http://www.ksp.sk/MOP/">www.ksp.sk/MOP/</a> Special research literature according to bachelor theses.					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 185					
A	B	C	D	E	FX
17.3	17.84	24.86	18.92	18.92	2.16
<b>Provides:</b> doc. RNDr. Gabriela Andrejková, CSc.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ BSI1b/15		<b>Course name:</b> Seminar in informatics			
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 6.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b> To inform students about new results in informatics with the goal using them in bachelor theses. To repeat important knowledges in informatics.					
<b>Brief outline of the course:</b> 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.					
<b>Recommended literature:</b> Sources of problems: <a href="http://www.ksp.sk">www.ksp.sk</a> <a href="http://www.ksp.sk/MOP/">www.ksp.sk/MOP/</a> Special research literature according to bachelor theses.					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 108					
A	B	C	D	E	FX
25.0	22.22	25.0	16.67	10.19	0.93
<b>Provides:</b> doc. RNDr. Gabriela Andrejková, CSc.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/SRP1/15		<b>Course name:</b> Seminar in informatics and information technologies			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 0 / 4 <b>Per study period:</b> 0 / 56 <b>Course method:</b> present					
<b>Number of credits:</b> 4					
<b>Recommended semester/trimester of the course:</b> 2.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 0					
A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0
<b>Provides:</b> doc. RNDr. Stanislav Krajčí, PhD., RNDr. Rastislav Krivoš-Belluš, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚMV/ SHM/10	<b>Course name:</b> Seminar on history of mathematics
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b> 5.	
<b>Course level:</b> I., II.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b> 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.	
<b>Learning outcomes:</b> 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.	
<b>Brief outline of the course:</b> 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.	
<b>Recommended literature:</b> 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)	
<b>Course language:</b> Slovak	
<b>Notes:</b>	

<b>Course assessment</b>					
Total number of assessed students: 115					
A	B	C	D	E	FX
79.13	6.09	8.7	2.61	3.48	0.0
<b>Provides:</b> RNDr. Ingrid Semanišínová, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚMV/ SMO/10	<b>Course name:</b> Seminar to mathematical olympiad
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b> 6.	
<b>Course level:</b> I., II.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b> 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.	
<b>Learning outcomes:</b> Students become familiar with solving problems from mathematical olympiads and mathematical competitions. They acquire theoretical basics necessary to lead mathematical group of talented children.	
<b>Brief outline of the course:</b> Number theory. Equations, inequations, inequalities. Word problems. Planimetry. Stereometry. Combinatorics. Pigeonhole principle. Combinatorial geometry. Probability. Math games. Interesting problems.	
<b>Recommended literature:</b> 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)	
<b>Course language:</b> Slovak	
<b>Notes:</b>	

<b>Course assessment</b>					
Total number of assessed students: 137					
A	B	C	D	E	FX
65.69	12.41	10.22	8.76	2.92	0.0
<b>Provides:</b> RNDr. Ingrid Semanišínová, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> KPE/ OLŠ/15		<b>Course name:</b> School Administration and Legislation			
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 3., 5.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 15					
A	B	C	D	E	FX
26.67	20.0	40.0	6.67	6.67	0.0
<b>Provides:</b> Mgr. Zuzana Boberová, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> KPO/SPKV/15		<b>Course name:</b> Social and Political Context of Education			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 4., 6.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 0					
A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0
<b>Provides:</b> prof. PhDr. Marcela Gbúrová, CSc.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/SWI1a/15		<b>Course name:</b> Software engineering			
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 4.					
<b>Course level:</b> I.					
<b>Prerequisites:</b> ÚINF/DBS1a/15 or ÚINF/DBdi/15					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b> To provide information concerning the principal activities related to the development of software products.					
<b>Brief outline of the course:</b> System, subsystem, software system. Software processes. Introduction to project management. Requirements gathering. Software modelilng. Software architectures. Software development methodologies. Verification and validation. Resource management.					
<b>Recommended literature:</b> 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.					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 209					
A	B	C	D	E	FX
11.96	14.83	21.05	22.01	28.71	1.44
<b>Provides:</b> doc. RNDr. Gabriel Semanišin, PhD., Mgr. Alexander Szabari, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> KGER/OJPV1/07		<b>Course name:</b> Specialised German Language - Natural Sciences 1			
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 4.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 125					
A	B	C	D	E	FX
20.8	21.6	26.4	22.4	8.0	0.8
<b>Provides:</b> Mgr. Eva Černáková, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice		
<b>Faculty:</b> Faculty of Science		
<b>Course ID:</b> ÚTVŠ/ TVa/11	<b>Course name:</b> Sports Activities I.	
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present		
<b>Number of credits:</b> 2		
<b>Recommended semester/trimester of the course:</b> 1.		
<b>Course level:</b> I., I.II., II.		
<b>Prerequisites:</b>		
<b>Conditions for course completion:</b>		
<b>Learning outcomes:</b>		
<b>Brief outline of the course:</b>		
<b>Recommended literature:</b>		
<b>Course language:</b>		
<b>Notes:</b>		
<b>Course assessment</b> Total number of assessed students: 7947		
abs	n	neabs
87.96	8.12	3.93
<b>Provides:</b> PaedDr. Imrich Staško, doc. PhDr. Ivan Šulc, CSc., doc. Mgr. Rastislav Feč, PhD., Mgr. Ivan Matúš, PhD., Mgr. Zuzana Küchelová, Mgr. Peter Bakalár, PhD., doc. PaedDr. Ivan Uher, PhD., PaedDr. Milena Švedová, PhD., Mgr. Agata Horbacz, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Lucia Kršňáková, PhD., Mgr. Dávid Kaško		
<b>Date of last modification:</b> 03.05.2015		
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.		

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice		
<b>Faculty:</b> Faculty of Science		
<b>Course ID:</b> ÚTVŠ/ TVb/11	<b>Course name:</b> Sports Activities II.	
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present		
<b>Number of credits:</b> 2		
<b>Recommended semester/trimester of the course:</b> 2.		
<b>Course level:</b> I., I.II., II.		
<b>Prerequisites:</b>		
<b>Conditions for course completion:</b>		
<b>Learning outcomes:</b>		
<b>Brief outline of the course:</b>		
<b>Recommended literature:</b>		
<b>Course language:</b>		
<b>Notes:</b>		
<b>Course assessment</b> Total number of assessed students: 7437		
abs	n	neabs
85.03	10.93	4.03
<b>Provides:</b> PaedDr. Imrich Staško, doc. Mgr. Rastislav Feč, PhD., doc. PhDr. Ivan Šulc, CSc., Mgr. Ivan Matúš, PhD., Mgr. Zuzana Küchelová, doc. PaedDr. Ivan Uher, PhD., Mgr. Peter Bakalár, PhD., PaedDr. Milena Švedová, PhD., Mgr. Agata Horbacz, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Lucia Kršňáková, PhD., Mgr. Dávid Kaško, Mgr. Aurel Zelko, PhD., Mgr. Dana Dračková, PhD.		
<b>Date of last modification:</b> 03.05.2015		
<b>Approved:</b> doc. RNDr. Stanislav Krajči, PhD., doc. RNDr. Ondrej Hutník, PhD.		

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice		
<b>Faculty:</b> Faculty of Science		
<b>Course ID:</b> ÚTVŠ/ TVc/11	<b>Course name:</b> Sports Activities III.	
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present		
<b>Number of credits:</b> 2		
<b>Recommended semester/trimester of the course:</b> 3.		
<b>Course level:</b> I., I.II., II.		
<b>Prerequisites:</b>		
<b>Conditions for course completion:</b>		
<b>Learning outcomes:</b>		
<b>Brief outline of the course:</b>		
<b>Recommended literature:</b>		
<b>Course language:</b>		
<b>Notes:</b>		
<b>Course assessment</b> Total number of assessed students: 4650		
abs	n	neabs
89.63	4.71	5.66
<b>Provides:</b> PaedDr. Imrich Staško, doc. Mgr. Rastislav Feč, PhD., doc. PhDr. Ivan Šulc, CSc., Mgr. Ivan Matúš, PhD., Mgr. Zuzana Küchelová, doc. PaedDr. Ivan Uher, PhD., PaedDr. Milena Švedová, PhD., Mgr. Peter Bakalár, PhD., Mgr. Agata Horbacz, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Lucia Kršňáková, PhD., Mgr. Dávid Kaško		
<b>Date of last modification:</b> 03.05.2015		
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.		

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice		
<b>Faculty:</b> Faculty of Science		
<b>Course ID:</b> ÚTVŠ/ TVd/11	<b>Course name:</b> Sports Activities IV.	
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present		
<b>Number of credits:</b> 2		
<b>Recommended semester/trimester of the course:</b> 4.		
<b>Course level:</b> I., I.II., II.		
<b>Prerequisites:</b>		
<b>Conditions for course completion:</b>		
<b>Learning outcomes:</b>		
<b>Brief outline of the course:</b>		
<b>Recommended literature:</b>		
<b>Course language:</b>		
<b>Notes:</b>		
<b>Course assessment</b> Total number of assessed students: 3884		
abs	n	neabs
85.79	6.77	7.44
<b>Provides:</b> PaedDr. Imrich Staško, doc. Mgr. Rastislav Feč, PhD., doc. PhDr. Ivan Šulc, CSc., Mgr. Ivan Matúš, PhD., Mgr. Zuzana Küchelová, PaedDr. Milena Švedová, PhD., Mgr. Peter Bakalár, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Agata Horbacz, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Lucia Kršňáková, PhD., Mgr. Dávid Kaško, Mgr. Aurel Zelko, PhD., Mgr. Dana Dračková, PhD.		
<b>Date of last modification:</b> 03.05.2015		
<b>Approved:</b> doc. RNDr. Stanislav Krajči, PhD., doc. RNDr. Ondrej Hutník, PhD.		

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚMV/ DGS/15	<b>Course name:</b> Students` Digital Literacy
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b> 1.	
<b>Course level:</b> I.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b> continuous assessment and final project	
<b>Learning outcomes:</b> 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.	
<b>Brief outline of the course:</b> 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.	
<b>Recommended literature:</b> 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.	
<b>Course language:</b> Slovak	
<b>Notes:</b>	

<b>Course assessment</b>	
Total number of assessed students: 19	
abs	n
100.0	0.0
<b>Provides:</b> doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Jozef Hanč, PhD., doc. RNDr. Ľubomír Šnajder, PhD.	
<b>Date of last modification:</b> 03.05.2015	
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.	

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚMV/ SVK/10		<b>Course name:</b> Students scientific conference			
<b>Course type, scope and the method:</b> <b>Course type:</b> <b>Recommended course-load (hours):</b> <b>Per week: Per study period:</b> <b>Course method:</b> present					
<b>Number of credits:</b> 4					
<b>Recommended semester/trimester of the course:</b>					
<b>Course level:</b> I., II.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b> Individual scientific work of students. Publishing of obtained results in a written form and as a public presentation.					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b> With respect to the research problematics (article in journals, books).					
<b>Course language:</b> Slovak or English					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 57					
A	B	C	D	E	FX
98.25	1.75	0.0	0.0	0.0	0.0
<b>Provides:</b>					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚTVŠ/ LKSp//13	<b>Course name:</b> Summer Course-Rafting of TISA River
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 36 <b>Per study period:</b> 504 <b>Course method:</b> present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b>	
<b>Course level:</b> I., II.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b>	
<b>Learning outcomes:</b>	
<b>Brief outline of the course:</b>	
<b>Recommended literature:</b>	
<b>Course language:</b>	
<b>Notes:</b>	
<b>Course assessment</b> Total number of assessed students: 92	
abs	n
35.87	64.13
<b>Provides:</b> Mgr. Peter Bakalár, PhD.	
<b>Date of last modification:</b> 03.05.2015	
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.	

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚTVŠ/ KP/12	<b>Course name:</b> Survival Course
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 36 <b>Per study period:</b> 504 <b>Course method:</b> present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b>	
<b>Course level:</b> I., II.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b>	
<b>Learning outcomes:</b>	
<b>Brief outline of the course:</b>	
<b>Recommended literature:</b>	
<b>Course language:</b>	
<b>Notes:</b>	
<b>Course assessment</b> Total number of assessed students: 251	
abs	n
43.82	56.18
<b>Provides:</b> Mgr. Marek Valanský, MUDr. Peter Dombrovský	
<b>Date of last modification:</b> 03.05.2015	
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.	

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ SLO1a/15		<b>Course name:</b> Symbolic logic			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 1 <b>Per study period:</b> 28 / 14 <b>Course method:</b> present					
<b>Number of credits:</b> 5					
<b>Recommended semester/trimester of the course:</b> 6.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b> To understand basic notions of sentence and predicate logic - sentence, sentence scheme, provability, satisfiability, term, formula.					
<b>Brief outline of the course:</b> Predicate logic – logic language, syntax and semantics, term, formula. Axioms, proof, provability. Interpretation, truth, model. Correctness of the predicate logic.					
<b>Recommended literature:</b> GOLDSTERN M., JUDAH H.: The Incompleteness Phenomenon, A New Course in Mathematical Logic, A K Peters, Wellesley, Massachusetts, 1995 <a href="http://cs.ics.upjs.sk/~krajci/skola/vyucba/ucebneTexty/logika/logika.pdf">http://cs.ics.upjs.sk/~krajci/skola/vyucba/ucebneTexty/logika/logika.pdf</a>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 347					
A	B	C	D	E	FX
18.16	9.51	13.83	12.68	31.12	14.7
<b>Provides:</b> doc. RNDr. Stanislav Krajčí, PhD., RNDr. Ondrej Krídlo, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚINF/SPP1b/15	<b>Course name:</b> Školské programovacie prostredia II.
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 / 2 <b>Per study period:</b> 28 / 28 <b>Course method:</b> present	
<b>Number of credits:</b> 4	
<b>Recommended semester/trimester of the course:</b> 6.	
<b>Course level:</b> I.	
<b>Prerequisites:</b> ÚINF/SPP1a/15	
<b>Conditions for course completion:</b> Creation of educational project in selected children's programming environment (Scratch/AppInventor). Designing and presentation of graded tasks collection in selected children's programming environment.	
<b>Learning outcomes:</b> 1. To get an overview of children's programming environments. 2. To acquire programming skills in selected children's programming environments. 3. To compile a collection of graded learning tasks on programming.	
<b>Brief outline of the course:</b> 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 Scratch/AppInventor, creating educational projects. Creating graded set of tasks to selected children's programming environment.	
<b>Recommended literature:</b> 1. LOVÁSZOVÁ, G. a kol. (2010) Ďalšie vzdelávanie učiteľov základných škôl a stredných škôl v predmete informatika: Malé programovacie jazyky. Bratislava : ŠPÚ, 2010. ISBN 978-80-8118-066-8 2. SALANCI, Ľ. a kol. (2010) Ďalšie vzdelávanie učiteľov základných škôl a stredných škôl v predmete informatika: Didaktika programovania. Bratislava : ŠPÚ, 2010. ISBN 978-80-8118-065-1 3. LOVÁSZOVÁ, G. a kol. (2011) Ďalšie vzdelávanie učiteľov základných škôl a stredných škôl v predmete informatika: Didaktika programovania pre ZŠ 1. Bratislava : ŠPÚ, 2010. ISBN 978-80-8118-080-4 4. LOVÁSZOVÁ, G. a kol. (2011) Ďalšie vzdelávanie učiteľov základných škôl a stredných škôl v predmete informatika: Didaktika programovania pre ZŠ 2. Bratislava : ŠPÚ, 2010. ISBN 978-80-8118-091-0	
<b>Course language:</b>	
<b>Notes:</b>	

<b>Course assessment</b>					
Total number of assessed students: 5					
A	B	C	D	E	FX
0.0	0.0	0.0	40.0	20.0	40.0
<b>Provides:</b> doc. RNDr. Gabriela Andrejková, CSc., doc. RNDr. Ľubomír Šnajder, PhD., PaedDr. Ján Guniš, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> KPE/TVE/08		<b>Course name:</b> Theory of Education			
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 4., 6.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 201					
A	B	C	D	E	FX
23.38	32.34	28.36	9.45	1.49	4.98
<b>Provides:</b> PaedDr. Renáta Orosová, PhD., Mgr. Zuzana Boberová, PhD., Mgr. Stanislava Marosi, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/TYS1/15		<b>Course name:</b> Typographical systems			
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 2 <b>Per study period:</b> 28 <b>Course method:</b> present					
<b>Number of credits:</b> 2					
<b>Recommended semester/trimester of the course:</b> 4., 6.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b> To provide the basic information on principles for typesetting of documents containing mathematical formulas in Plain TeX, AMS-TeX, and LaTeX.					
<b>Brief outline of the course:</b> 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.					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 232					
A	B	C	D	E	FX
46.55	19.4	20.26	5.6	7.33	0.86
<b>Provides:</b> doc. RNDr. Stanislav Krajči, PhD.					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajči, PhD., doc. RNDr. Ondrej Hutník, PhD.					

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ WBdi/15		<b>Course name:</b> Web a návrh používateľských rozhraní			
<b>Course type, scope and the method:</b> <b>Course type:</b> Lecture / Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 0 / 3 <b>Per study period:</b> 0 / 42 <b>Course method:</b> present					
<b>Number of credits:</b> 3					
<b>Recommended semester/trimester of the course:</b> 3., 5.					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b> Solving partial assignments and active participation in discussions in a virtual classroom.					
<b>Learning outcomes:</b> Create accessible and usable Web Sites, used the standards (X) HTML and CSS. Apply the rules for the page layout. Maintain website and use the basic procedures for their promotion.					
<b>Brief outline of the course:</b> Web Development using (X) HTML and CSS. Tools for web development. Standards of accessibility and usability of the web sites. Cycle of development web site and its promotion.					
<b>Recommended literature:</b> Basic sources for distance courses will be published in LMS Moodle. TITTEL, Ed a Jeff NOBLE. HTML, XHTML & CSS. 7th ed. Hoboken, NJ: Wiley, c2011, xx, 392 p. --For dummies. ISBN 04-709-1659-1. KRUG, Steve. <i>Nenuťte užívateľa premýšľať!</i>: praktický průvodce testováním a opravou chyb použitelnost webu</i>. Vyd. 1. Brno: Computer Press, 2010, 165 s. ISBN 978-80-251-2923-4. Slovensko. Výnos Ministerstva financií Slovenskej republiky z 9. júna 2010 o štandardoch pre informačné systémy verejnej správy. In: <i>312/2010</i>. 2010. Dostupné z: <a href="http://informatizacia.sk/ext_dok-vynos_a_prilohy_2010-312/7431c">http://informatizacia.sk/ext_dok-vynos_a_prilohy_2010-312/7431c</a>					
<b>Course language:</b> slovak					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 70					
A	B	C	D	E	FX
14.29	8.57	10.0	17.14	24.29	25.71
<b>Provides:</b> doc. RNDr. Ľubomír Šnajder, PhD., PaedDr. Ján Guniš, PhD.					
<b>Date of last modification:</b> 03.05.2015					

<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.
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## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice	
<b>Faculty:</b> Faculty of Science	
<b>Course ID:</b> ÚTVŠ/ ZKLS//13	<b>Course name:</b> Winter Ski Training Course
<b>Course type, scope and the method:</b> <b>Course type:</b> Practice <b>Recommended course-load (hours):</b> <b>Per week:</b> 36 <b>Per study period:</b> 504 <b>Course method:</b> present	
<b>Number of credits:</b> 2	
<b>Recommended semester/trimester of the course:</b>	
<b>Course level:</b> I., II.	
<b>Prerequisites:</b>	
<b>Conditions for course completion:</b>	
<b>Learning outcomes:</b>	
<b>Brief outline of the course:</b>	
<b>Recommended literature:</b>	
<b>Course language:</b>	
<b>Notes:</b>	
<b>Course assessment</b> Total number of assessed students: 81	
abs	n
32.1	67.9
<b>Provides:</b> PaedDr. Imrich Staško, doc. PhDr. Ivan Šulc, CSc.	
<b>Date of last modification:</b> 03.05.2015	
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.	

## COURSE INFORMATION LETTER

<b>University:</b> P. J. Šafárik University in Košice					
<b>Faculty:</b> Faculty of Science					
<b>Course ID:</b> ÚINF/ BSSMI/15		<b>Course name:</b> Základy informatiky			
<b>Course type, scope and the method:</b> <b>Course type:</b> <b>Recommended course-load (hours):</b> <b>Per week: Per study period:</b> <b>Course method:</b> present					
<b>Number of credits:</b> 1					
<b>Recommended semester/trimester of the course:</b>					
<b>Course level:</b> I.					
<b>Prerequisites:</b>					
<b>Conditions for course completion:</b>					
<b>Learning outcomes:</b>					
<b>Brief outline of the course:</b>					
<b>Recommended literature:</b>					
<b>Course language:</b>					
<b>Notes:</b>					
<b>Course assessment</b> Total number of assessed students: 0					
A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0
<b>Provides:</b>					
<b>Date of last modification:</b> 03.05.2015					
<b>Approved:</b> doc. RNDr. Stanislav Krajčí, PhD., doc. RNDr. Ondrej Hutník, PhD.					