University: P. J.	. Šafárik Univ	versity in Košice				
Faculty: Faculty	y of Science					
<b>Course ID:</b> ÚIN AFJ1a/15	VF/ Course	e <b>name:</b> Automata a	and formal lang	uages		
Course type, sc Course type: I Recommended Per week: 2 / 1 Course metho	ope and the Lecture / Prac l course-load l Per study p d: present	method: tice l (hours): eriod: 28 / 14				
Number of crea	lits: 4					
Recommended	semester/tri	mester of the cours	se: 4.			
Course level: I.						
Prerequisities:						
<b>Conditions for</b> Oral examination	<b>course comp</b> on.	letion:				
<b>Learning outco</b> To provide theo necessary know	mes: retical backg ledge in theo	round for studying or ry of automata.	computer scienc	e in general, by g	iving the	
Brief outline of the course: Chomsky hierarchy of grammars and languages. Finite-state transducers and mapping, construction of a reduced automaton. Finite-state acceptors, nondeterministic acceptors, regular expressions. Closure properties of regular languages. Context-free grammars, Chomsky and Greibach normal forms. Pushdown automata. Pumping lemma. Closure properties of context-free languages.						
Recommended literature: J.E. Hopcroft, R.Motwani, J.D. Ullman: Introduction to automata theory, languages, and computation, Addison-Wesley, 2001. J. Shallit: A second course in formal languages and automata theory, Cambridge University press, 2009. M. Sipser: Introduction to the theory of computation. Thomson Course Technology, 2006.						
Course languag	ge:					
Course assessment Total number of assessed students: 804						
А	В	С	D	Е	FX	
24.75 17.79 24.0 18.41 9.95 5.1						
<b>Provides:</b> Mgr. Bednárová, PhD	Alexander Sz	abari, PhD., prof. R	NDr. Viliam Ge	effert, DrSc., RNI	Dr. Zuzana	
Date of last modification: 25.02.2018						

Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.

University: P. J.	Šafárik Univers	ity in Košice				
Faculty: Faculty	of Science					
Course ID: ÚM ALG1b/10	Course ID: ÚMV/ Course name: Algebra II ALG1b/10					
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 4 / 2 Per study period: 56 / 28 Course method: present						
Number of cred	lits: 7					
Recommended	semester/trimes	ster of the course	e: 2.			
Course level: I.	,					
Prerequisities:	ÚMV/ALGa/10					
Conditions for of Test Exam	course completi	on:				
Learning outco To obtain a deep	mes: per knowledge of	n vector spaces, s	systems of linear	r equations and af	fine spaces.	
Brief outline of Vector spaces, s spaces. The ran a fundamental s polyhedrons.	the course: subspaces. A ba k of a matrix, th solution set. Aff	sis, a dimension e Frobenius theo ine spaces, subs	and a characte rem. Homogene paces and their	rization of n-dim eous systems of li positions. Conve	ensional vector inear equations, ex sets, convex	
<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						
Course language: Slovak						
Course assessment Total number of assessed students: 260						
А	В	С	D	E	FX	
12.31 12.31 17.31 12.31 43.85 1.92						
Provides: doc. RNDr. Jaroslav Ivančo, CSc., RNDr. Mária Maceková, PhD.						
Date of last mo	dification: 27.02	2.2018				
Approved: Guar	ranteeprof. RND	r. Katarína Cechl	árová, DrSc.			

University: P. J. Šafárik University in Košice						
Faculty: Faculty	y of Sc	cience				
<b>Course ID:</b> ÚM ALG1c/10	Course ID: ÚMV/ Course name: Algebra III ALG1c/10					
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 4 / 2 Per study period: 56 / 28 Course method: present						
Number of crea	lits: 7					
Recommended	semes	ster/trimes	ter of the cours	<b>e:</b> 3.		
Course level: I.						
Prerequisities:	ÚMV/	'ALG1b/10				
<b>Conditions for</b> Awarded accord	<b>course</b> ling to	e <b>completi</b> continual	o <b>n:</b> evaluation, writt	en and oral exar	nination.	
Learning outco The students lea for applications fundamentals of domains.	mes: arn bas in geo f group	sic concept ometry and p theory an	s, theorems and other parts of m d ring theory, an	methods of linea athematics. The d about properti	ar algebra, at the le y obtain knowledg es of the polynom	evel necessary ge about the ial integral
Brief outline of - Ring, integral of factors. Roots o - Linear mappi compositions of - Eigenvalues an - Groups, subgr	the co domain f polyn ngs ar f linear ns eige oups, o	ourse: n. Integral c nomials. nd their ma r mappings envectors, s cyclic grou	lomain of polyno atrices. Operatio . Regular linear similar matrices. ps, normal subg	omials over a fiel ons with linear f transformations Bilinear and qu roups, factorizat	d. Decomposition mappings, matrice , regular matrices. adratic forms. ion.	into irreducible es of sums and
Recommended literature: S.Mac Lane, G.Birkhoff: Algebra, The Macmillan Company, New York, 1964 D.A.R. Wallace: Groups,rings and fields, Springer, 1998 G. Birkhoff, S. MacLane: Prehl'ad modernej algebry, Alfa Bratislava, 1979 (in Slovak) T. Katriňák a kol.: Algebra a teoretická aritmetika 1, Alfa Bratislava, 1985 (in Slovak)						
Course language: Slovak						
Course assessment Total number of assessed students: 102						
А		В	С	D	E	FX
8.82	1	4.71	20.59	26.47	29.41	0.0
Provides: doc. I	RNDr.	Miroslav I	Ploščica, CSc.			
Date of last mo	dificat	tion: 27.02	.2018			
Approved: Gua	rantee	prof. RND	r. Katarína Cech	lárová, DrSc.		

University: P. J.	Šafárik Univers	ity in Košice					
Faculty: Faculty	Faculty: Faculty of Science						
<b>Course ID:</b> ÚM ALGa/10	V/ Course name: Algebra I						
Course type, sc Course type: I Recommended Per week: 3 / 3 Course method	ope and the met Lecture / Practice I course-load (h B Per study period: present	thod: ours): od: 42 / 42					
Number of cred	lits: 7						
Recommended	semester/trimes	ster of the cours	e: 1.				
Course level: I.							
Prerequisities:							
<b>Conditions for</b> According to th exam	course completi e results from the	on: e semester and in	view of the resu	ults of the written	and oral final		
Learning outco To obtain basic concerning syst	<b>mes:</b> knowledge from ems of linear equ	number theory c ations. To be abl	oncerning divisi e to apply it in c	bility and from li concrete excercise	near algebra es.		
<b>Brief outline of</b> Divisibility in 2 Computing with	the course: Z. Fields. System matrices. Deter	ns of linear equ minants, Cramer	ations, Gauss e rule.	limination. Maps	, permutations.		
<b>Recommended</b> T.S Blyth, E.F. I K. Jänich: Linea	<b>literature:</b> Robertson: Basic ar algebra, Spring	linear algebra, S ger Verlag, 1991.	pringer Verlag,	2001.			
Course languag Slovak	ge:						
Course assessm Total number of	ent assessed studen	ts: 1387					
А	В	С	D	Е	FX		
11.1	11.1 11.9 17.88 17.74 28.98 12.4						
<b>Provides:</b> prof. Tamášová, Mgr.	RNDr. Danica St Simona Rindošo	tudenovská, CSc. ová, Mgr. Ivana V	, RNDr. Igor Fa <sup>7</sup> arga	brici, Dr. rer. nat.,	, RNDr. Martina		
Date of last mo	dification: 27.02	2.2018					
Approved: Gua	ranteeprof. RND	r. Katarína Cechl	lárová, DrSc.				

University: P. J. Šafá	rik University in Košice					
Faculty: Faculty of S	Faculty: Faculty of Science					
Course ID: ÚMV/ BKP1/14	Course name: Bachelor Project					
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 1 Per study period: 14 Course method: present						
Number of credits: 1						
Recommended seme	ster/trimester of the cours	e: 5.				
Course level: I.						
Prerequisities:						
Conditions for course To prepare and preserved	e completion: nt a contribution related to the	hesis and its topic.				
<b>Learning outcomes:</b> To get students famil presentation as well a	iar with basic knowledge on as with the support for its rea	the form and content of thesis and thesis alisation.				
Brief outline of the c Necessary elements a Presentation software and contribution mak	<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					
Recommended litera electronic informatio	nture: n sources					
<b>Course language:</b> Slovak or English	Course language: Slovak or English					
Course assessment Total number of assessed students: 109						
	abs n					
100.0 0.0						
Provides: doc. RNDr	Provides: doc. RNDr. Dušan Šveda, CSc.					
Date of last modification: 27.02.2018						
Approved: Guarantee	eprof. RNDr. Katarína Cech	lárová, DrSc.				

University: P. J. Š	University: P. J. Šafárik University in Košice						
Faculty: Faculty	of Science						
<b>Course ID:</b> ÚMV BPO/14	V/ Course name: Bachelor thesis and its defence						
Course type, scop Course type: Recommended of Per week: Per s Course method:	course-load (h study period: present	thod: ours):					
Number of credit	ts: 4						
Recommended se	emester/trimes	ster of the cours	e:				
Course level: I.							
Prerequisities:							
<b>Conditions for co</b> Acquiring the req	urse completi uired number o	on: of credits in the s	tructure defined	by the study plan			
<b>Learning outcom</b> Evaluation of stud	les: dent's compete	nces with respect	to the profile of	the graduate.			
Brief outline of the Presentation of reassuring the que	he course: esults of the bac estions of mem	chelor thesis, ans bers of evaluatio	wering the quest n commitee.	ions of the thesis	supervisor and		
Recommended li	terature:						
Course language	:						
Course assessment Total number of assessed students: 45							
A	В	С	D	Е	FX		
57.78	57.78 26.67 8.89 4.44 2.22 0.0						
Provides:	Provides:						
Date of last modification: 27.02.2018							
Approved: Guara	nteeprof. RND	r. Katarína Cech	Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.				

University: P. J.	Šafárik Univer	sity in Košice					
Faculty: Faculty	of Science						
<b>Course ID:</b> ÚM BSE/14	Course ID: ÚMV/ Course name: Economic and financial mathematics SE/14						
Course type, sco Course type: Recommended Per week: Per Course methoo	ope and the me course-load (l study period: l: present	thod: nours):					
Number of cred	its: 4						
Recommended	semester/trime	ster of the cours	se:				
<b>Course level:</b> I.							
Prerequisities:	ÚMV/MAN1d/	10 and ÚMV/PST	[a/10 and ÚMV/I	PSTb/10			
<b>Conditions for o</b> Acquiring the re	course complet equired number	<b>ion:</b> of credits in the s	structure defined	by the study plar	1.		
<b>Learning outco</b> Evaluation of st	mes: udent's compet	ences with respec	et to the profile of	f the graduate.			
<ul> <li>The state examination is performed in a form of a debate with the emphasis on one topic of the following courses: ÚMV/MANd/10, ÚMV/PSTb/10, ÚMV/FIM/10, ÚMV/ZIP/10, ÚMV/LCO/10</li> <li>1. Differential and integral calculus of several variables.</li> <li>2. Measure theory and Lebesgue integral.</li> <li>3. Random variables, their distributions and characteristics.</li> <li>4. Estimation theory and testing statistical hypotheses.</li> <li>5. Cash flows, their present and future value.</li> <li>6. Analysis of securities and portfolio immunisation.</li> <li>7. Mortality modelling and basic types of life insurance.</li> <li>8. Methods of computing insurance premiums and insurance reserves.</li> <li>9. Linear programming problems and solution methods.</li> <li>10. Duality in linear programming and its economic interpretation.</li> </ul>							
Recommended	literature:						
Course language: slovak							
Course assessm Total number of	ent assessed stude	nts: 12					
A	В	C	D	E	FX		
41.67	41.67 8.33 33.33 16.67 0.0 0.0						
Provides:				<b>.</b>			
Date of last mod	lification: 27.0	2.2018					
Approved: Guar	ranteeprof. RNI	Dr. Katarína Cech	llárová, DrSc.				

University: P. J. Šafárik University in Košice				
Faculty: Faculty of S	Science			
<b>Course ID:</b> ÚMV/ DFR/10	Course name: Differential equations			
Course type, scope a Course type: Lectu Recommended cou Per week: 3 / 1 Per Course method: pr	and the method: are / Practice arse-load (hours): • study period: 42 / 14 resent			
Number of credits:	5			
Recommended sem	ester/trimester of the course: 5.			
Course level: I., II.				
Prerequisities:				
<b>Conditions for cour</b> Continuous assessm given by continuous	se completion: ent is taken the form of two tests during the semester. Final evaluation is assessment (40%), written and oral part of the exam (30% and 30%).			
Learning outcomest Theory of differentian numerous application course is to familiarian and their systems, an We consider them as	al equations is one of the fundamental areas of mathematical analysis. It has ns in various fields of science and technology. The main objective of this ize students with the basics of the theory of ordinary differential equations and methods for solving certain types of differential equations and systems. s possible mathematical models of real situations.			
<b>Brief outline of the</b> Basic concepts. Ele equations. The existe of the first order, the equations of the n-th differential systems of solutions to Cauc structure of genera equations and syster Euler differential equ	<b>course:</b> mentary methods for solving and applications of the first order differential ence and uniqueness of solutions to Cauchy problem for differential equations e n-th order and for differential systems. The relationship between differential n order and systems. Linear differential equations of the n-th order and linear - the local and global theorem on the existence and uniqueness chy problem, basic properties of solutions, fundamental system of solutions, l solution, Lagrange method of variation of constants, linear differential ns with constant coefficients. Reduction of the order of differential equations. uations. Elimination method for solving the systems of differential equations.			
Recommended liter 1. L. Kluvánek, I. M 2. J. Eliaš, J. Horváť Slovak). 3. S. J. Farlow: An i Publications, New Y 4. W. Kohler, L. Joh Pearson Education, I 5. M. Tenenbaum: C 6. J. C. Robinson: A Press, Cambridge, 2	ature: Iišík, M. Švec: Matematika II, SVTL, Bratislava, 1961 (in Slovak). h, J. Kajan: Zbierka úloh z vyššej matematiky 3, Alfa, Bratislava, 1980 (in ntroduction to differential equations and their applications, Dover York, 2006. nson: Elementary differential equations with boundary value problems, Boston, 2006. Ordinary differential equations, Dover Publications, New York, 1985. n introduction to ordinary differential equations, Cambridge University 004.			

7. J. Polking, A. Boggess, D. Arnold: Differential equations, Prentice Hall (Pearson), Upper Saddle River, 2006.

Course language: Slovak						
Course assessment Total number of assessed students: 442						
А	В	С	D	E	FX	
17.42	11.99	20.36	17.87	25.79	6.56	
Provides: Mgr.	Provides: Mgr. Jozef Kiseľák, PhD.					
Date of last modification: 27.02.2018						
Approved: Gua	aranteeprof. RND	r. Katarína Cech	lárová, DrSc.			

University: P. J. Šafárik University in Košice							
Faculty: Faculty	Faculty: Faculty of Science						
<b>Course ID:</b> ÚM DSMa/10	V/ Course na	ame: Discrete ma	thematics I				
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present							
Number of cred	its: 5						
Recommended	semester/trime	ster of the cours	e: 3.				
Course level: I.	,						
Prerequisities:							
<b>Conditions for</b> Examination.	course complet	ion:					
Learning outco To be familiar w appreciate math just standard rec	mes: with some factua ematical notions vipes, and to exp	l knowledge of cos, definitions, and ress mathematica	ombinatorics and proofs, to solve Il thoughts preci	d graph theory. To problems requiri sely and more rig	o understand an ng more than orously.		
<ul> <li>Brief outline of the course:</li> <li>Basic principles.</li> <li>Counting and binomial coefficients, Binomial theorem, polynomial theorem.</li> <li>Recurrence: Some miscellaneous problems, Fibonacci-type relations, Using generating functions, miscellaneous methods.</li> <li>The inclusion-exclusion principle. Rook polynomials.</li> <li>Introduction to graphs: The concept of graphs, paths in graphs. Connectivity. Trees, bipartite graphs.</li> <li>Planarity. Polyhedra.</li> <li>Traveling round a graph: Eulerian graphs, Hamiltonian graphs.</li> <li>Partitions and colourings: Vertex colourings of graphs. Edge colourings of graphs</li> <li>Recommended literature:</li> <li>1. I. Anderson, A first course in discrete mathematics, Springer-Verlag London, 2001.</li> </ul>							
New York 1999.							
Slovak							
Course assessment Total number of assessed students: 567							
А	В	С	D	E	FX		
13.76	13.76 11.64 17.46 22.57 26.28 8.29						
Provides: RND	: Mária Maceko	vá, PhD., doc. R	NDr. Roman Sot	ták, PhD.			
Date of last mo	lification: 27.02	2.2018					

Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.

¥	
University: P. J. Safá	rik University in Košice
Faculty: Faculty of S	cience
<b>Course ID:</b> ÚMV/ DSMb/10	Course name: Discrete mathematics II
Course type, scope a Course type: Lectur Recommended cour Per week: 2 / 2 Per Course method: pre	nd the method: re / Practice rse-load (hours): study period: 28 / 28 esent
Number of credits: 5	
Recommended seme	ster/trimester of the course: 4.
Course level: I.	
Prerequisities: ÚMV	/DSMa/10 or ÚMV/DSM3a/10
<b>Conditions for cours</b> Two tests during the It is made on the base and an oral exam (50	the completion: semester e of results of two tests during the semester (50%)and a final written exam %)
Learning outcomes: Mastered funamental applications of graph	methods of graph theory. To be familiar with some possibilities of theory
Brief outline of the c Introduction to graph Connectivity and dist Trees, spanning subg Independence and co Introduction to the Ra Introduction to the ex Matchings: Theorem Vertex colorings: The Chromatic polynomia Edge colourings, The Introduction to direct kernel of a graph. Introduction to applied	ourse: s. sance in graphs. raphs verings. amsey theory. atternal graph theory. of Hall, theorem of Berge, optimal assignment problems. corem of Brooks, Theorem of Erdos and Szekeres. als. corem of Koenig. ed graphs: Basic notions, connectivities, tounaments, acyclic graphs, base and cations of graphs.
Recommended litera 1. A. Bondy and U.S 2. G. Chartrand, L. L 3. R. Diestel: Graph 4.M.N.S. Swamy and Willey Interscience P	Ature: R. Murty: Graph theory, Springer-Verlag 2008 esniak, and P. Zhang, Graphs and digraphs, CRC Press, Boca Raton 2011 Theory, Springer-Verlag, New York, Inc. 1997 I K. Thulasiraman: Graphs, Networks and Algorithms. Publ., New York 1981
Course language: Slovak	
Course assessment	

Course assessment

Total number of assessed students: 386						
А	В	С	D	Е	FX	
11.92	9.59	17.36	19.17	28.24	13.73	
Provides: RNDr. Igor Fabrici, Dr. rer. nat., RNDr. Mária Maceková, PhD.						
Date of last modification: 27.02.2018						
Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.						

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚMV/ DSMc/10	Course name: Discrete mathematics III
Course type, scope a Course type: Lectur Recommended cour Per week: 2 / 2 Per Course method: pre	nd the method: re / Practice rse-load (hours): study period: 28 / 28 esent
Number of credits: 5	
Recommended seme	ster/trimester of the course: 5.
Course level: I.	
Prerequisities: ÚMV	/DSMb/10
<b>Conditions for cours</b> Two tests during the s It is made on the base and an oral exam (50	e completion: semester e of results of two tests during the semester (50%)and a final written exam %)
Learning outcomes: Mastered fundamenta	al methods of graph theory. Abilities of applications of graph theory.
Brief outline of the c Eulerian and Hamilto Connectivity: Theore Matching: Theorem of Planar graphs: Theore Plane graphs: Euler p Introduction to the th Colourings of plane g Crossing numbers of Introduction to the to Edge colourings: The Application of Graph	ourse: onian graphs. m of Menger. of Tutte. em of Kuratowski. oolyhedral formula and its consequences, eory of light graphs in plane graphs. graphs. graphs. graphs. pological graph theory. eorem of Vizing. theory: The shortest path problem, the critical path method.
Recommended litera 1. A. Bondy and U.S. 2. G. Chartrand, L. L 3. R. Diestel: Graph 7 4.M.N.S. Swamy and Willey Interscience P	<ul> <li>Ature:</li> <li>A.R. Murty: Graph theory, Springer-Verlag 2008</li> <li>B.S. Murty: Graph theory, Springer-Verlag 2008</li> <li>B. S. S.</li></ul>
Course language: Slovak	
Course assessment Total number of asses	ssed students: 64

А	В	С	D	Е	FX		
12.5	34.38	14.06	29.69	9.38	0.0		
Provides: prof. RNDr. Tomáš Madaras, PhD., RNDr. Mária Maceková, PhD.							
Date of last modification: 27.02.2018							
Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.							

University: P. J.	Šafárik Univer	sity in Košice					
Faculty: Faculty	Faculty: Faculty of Science						
Course ID: ÚM FKP/10	ourse ID: ÚMV/     Course name: Complex analysis       XP/10     Course name: Complex analysis						
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 1 Per study period: 42 / 14 Course method: present							
Number of cred	its: 5						
Recommended s	semester/trime	ster of the cours	<b>e:</b> 6.				
Course level: I.							
Prerequisities: U	ÚMV/MAN1c/1	0 or ÚMV/MAN	[2d/10 or ÚMV/]	FRPb/19			
<b>Conditions for c</b> Two written test continuous asses	course complet during semeter ssment, written	ion: and activity stud and oral part of th	ent to practice. I he exam.	Final evaluation is	s given by		
Learning outcome The purpose of the calculus of comp	<b>Learning outcomes:</b> The purpose of the course is to provide introductory knowledge in differential and integral calculus of complex functions and develop the ability to use this theory.						
<b>Brief outline of</b> Complex numb continuity, differ theorems and its and Fourier trans	<b>Brief outline of the course:</b> Complex numbers, complex sequences and series. Function of a complex variable - limits, continuity, differentiability, Cauchy-Riemann equations. Integration in the complex plane - Cauchy's theorems and its consequences. Laurent's series, residues and Cauchy's residue theorem. Laplace and Fourier transform and their applications.						
Recommended literature: 1. Priestley, H.A.: Introduction to Complex Analysis. Oxford University Press, Oxford, 2004. 2. Sveshnikov, A Tikhonov, A.: The Theory of Functions of a Complex Variable. Mir Publishers, Moscow, 1973.							
Course language: Slovak							
Course assessment Total number of assessed students: 93							
A	В	C	D	Е	FX		
9.68	9.68 5.38 26.88 20.43 26.88 10.75						
Provides: doc. RNDr. Ondrej Hutník, PhD.							
Date of last modification: 27.02.2018							
Approved: Guar	anteeprof. RNI	Dr. Katarína Cech	lárová, DrSc.				

University: P. J	. Šafárik Univers	ity in Košice				
Faculty: Faculty of Science						
<b>Course ID:</b> ÚM FMT/10	ÚMV/ <b>Course name:</b> Financial mathematics					
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 1 Per study period: 28 / 14 Course method: present						
Number of crea	lits: 4					
Recommended	semester/trimes	ster of the cours	<b>e:</b> 3.			
Course level: I.						
Prerequisities:						
<b>Conditions for</b> Two tests durin Based on writte	<b>course completi</b> g the semester on tests and oral e	on: exam.				
Learning outco Knowledge of t	mes: he basics of fina	ncial mathematic	·S.			
Financial syste discounting. Th value. Annuitie Analysis of inve projects. Stocks Financial deriva	Financial systems and their structure. Simple, compound and continuous interesting and discounting. The time value of money, inflation and taxes. Cash flows, their present and future value. Annuities, savings and loan amortizations. The time structure of interest rates, yield curves. Analysis of investments, decisional criteria and techniques of valuation and comparison of financial projects. Stocks and bonds, their valuation, duration and konvexity. Immunization of portfolio.					
<ul> <li>Recommended literature:</li> <li>1. Skřivánková VSkřivánek J.: Kvantitatívne metódy finančných operácií, IURA Edition, Bratislava, 2006.</li> <li>2. Capiński M., Zastawniak T.: Mathematics for Finance, Springer, London, 2011.</li> <li>3. Lovelock at al.: An Introduction to the Mathematics of Money, Springer, London, 2007.</li> <li>4. Janssen at al.: Mathematical Finance, ISTE / Wiley 2009</li> </ul>						
<b>Course languag</b> Slovak	Course language: Slovak					
Course assessment Total number of assessed students: 46						
А	В	С	D	Е	FX	
8.7	15.22	21.74	19.57	23.91	10.87	
Provides: Mgr.	Katarína Lučivja	nská, PhD.				
Date of last modification: 27.02.2018						
Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.						

Faculty: Faculty of Science						
Course ID: ÚMV/ GEO1a/10Course name: Geometry I						
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 4 / 2 Per study period: 56 / 28 Course method: present						
Number of credits: 7						
Recommended semester/trimester of the course: 5.						
Course level: I.						
Prerequisities: UMV/ALG1b/10						
Conditions for course completion: Test Exam						
<b>Learning outcomes:</b> To obtain a deeper knowledge on Euclidean spaces and basic geometric transformations.						
<b>Brief outline of the course:</b> Euclidean spaces, the distance and angle of subspaces. The measure of angle and the volume of convex polyhedron. Geometry of the triangle. Curves and surfaces of second order. Affine transformations, Isometric transformations and similitudes.						
<b>Recommended literature:</b> A. F. Beardon: Algebra and geometry, Cambridge University Press, 2005						
Course language: Slovak						
Course assessment Total number of assessed students: 194						
A B C D E FX						
9.79 11.34 12.89 18.04 43.81 4.12						
Provides: doc. RNDr. Jaroslav Ivančo, CSc., RNDr. Andrej Gajdoš						
Date of last modification: 27.02.2018						
Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.						

Faculty: Faculty of Science						
Course ID: ÚMV/ KOP/10Course name: Convex programming						
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 1 Per study period: 42 / 14 Course method: present						
Number of credits: 5						
Recommended semester/trimester of the course: 6.						
Course level: I.						
Prerequisities: ÚMV/LCO/10 and (ÚMV/MAN1c/10 or ÚMV/MAN2d/10 or ÚMV/FRPb/19)						
<b>Conditions for course completion:</b> Based on the results of written tests (two per term, with emphasis on problem solving) and on the oral examination.						
<b>Learning outcomes:</b> To learn the theoretical basis and the most important methods of nonlinear programming						
<b>Brief outline of the course:</b> Practical problems leading to a nonlinear program. Convex sets and their properties. Convex functions – properties and criteria of convexity. Necessary and sufficient conditions of optimality. Karush-Kuhn-Tucker conditions. Ouadratic programming.						
Recommended literature: Bazaraa, Sherali, Shetty: Nonlinear programming, Wiley, New York 1993						
Course language: Slovak or English						
Course assessment Total number of assessed students: 146						
A B C D E FX						
11.64 16.44 15.75 14.38 34.93 6.85						
Provides: prof. RNDr. Tomáš Madaras, PhD.						
Date of last modification: 27.02.2018						
Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.						

University: P. J. Šafá	rik University in Košice					
Faculty: Faculty of Science						
Course ID: ÚTVŠ/ KP/12	Course ID: ÚTVŠ/ Course name: Survival Course KP/12					
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: Per study period: 36s Course method: present						
Number of credits: 2						
Recommended seme	ster/trimester of the cours	e:				
Course level: I., II.						
Prerequisities:						
<b>Conditions for cours</b> Conditions for course Attendance Final assessment: cor	e completion: e completion: ntinuous fulfilment of all tas	ks within the course				
Learning outcomes: Students will be familiarized with principles of safe stay and movement in extreme natural conditions as they will obtain theoretical knowledge and practical skills to solve the extraordinary and demanding situations connected with survival and minimization of damage to health. The course develops team work and students will learn how to manage and face the situations that						
Brief outline of the course:         Brief outline of the course:         Lectures:         1. Principles of behaviour and safety for movement and stay in unknown mountains         2. Preparation and leadership of tour         3. Objective and subjective danger in mountains         4. Principles of hygiene and prevention of damage to health in extreme conditions         Exercises:         1. Movement in terrain, orientation and navigation in terrain (compasses, GPS)         2. Preparation of improvised overnight stay         3. Water treatment and food preparation.         Recommended literature:         Course language:						
Total number of assessed students: 365						
abs n						
	44.38	55.62				

Provides: MUDr. Peter Dombrovský, Mgr. Marek Valanský

Date of last modification: 18.08.2017

Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.

University: P. J. Šafárik University in Košice						
Faculty: Faculty of Science						
Course ID: ÚINF/       Course name: Cryptographic protocols         KRP1/15       Course name: Cryptographic protocols						
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present						
Number of credits: 4						
Recommended semester/trimester of the course: 5.						
Course level: I., II.						
Prerequisities:						
<b>Conditions for course completion:</b> written test						
Learning outcomes: to acquire knowledge on design and verifying of cryptographic protocols						
Brief outline of the course: Authentication and key establishment using shared and public key cryptography, key agreement protocols, conference key agreement, zero-knowledge protocols.						
<ul> <li>Recommended literature:</li> <li>1. Colin Boyd, Anish Mathuria: Protocols for Authentication and Key Establishment, Springer, 2003</li> <li>2. Douglas R. Stinson: Cryptography: Theory and Practice, Third Edition, Chapman &amp; Hall/CRC, 2006</li> <li>3. Bruce Schneier: Applied Cryptography, Second Edition, John Wiley &amp; Sons Inc., 1996</li> <li>4. Peter Ryan, Steve Schneider: Modeling and Analysis of Security Protocols, Addison-Wesley, 2001</li> </ul>						
Course language:						
Course assessment Total number of assessed students: 14						
A B C D E FX						
35.71 0.0 14.29 21.43 21.43 7.14						
Provides: doc. RNDr. Jozef Jirásek, PhD., RNDr. Rastislav Krivoš-Belluš, PhD.						
Date of last modification: 25.02.2018						
Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.						

University: P. J	. Šafárik Univers	sity in Košice				
Faculty: Facult	y of Science			_		
<b>Course ID:</b> ÚIN KRS/15	<b>D:</b> ÚINF/ <b>Course name:</b> Cryptographic systems and their applications					
Course type, sc Course type: 1 Recommender Per week: 3 / 2 Course metho	cope and the me Lecture / Practice d course-load (h 2 Per study peri d: present	thod: e nours): iod: 42 / 28				
Number of cree	dits: 6					
Recommended	semester/trime	ster of the cours	<b>e:</b> 5.			
Course level: I.	, II.					
Prerequisities:						
<b>Conditions for</b>	course complet	ion:				
Learning outco	omes:					
Brief outline of	the course:					
Recommended	literature:					
Course languag	ge:					
Course assessment Total number of assessed students: 103						
А	В	C	D	Е	FX	
13.59	13.59 8.74 10.68 12.62 34.95 19.42					
Provides: RNDr. Rastislav Krivoš-Belluš, PhD.						
Date of last modification: 25.02.2018						
Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.						

Faculty of Science         Course ID: ÚMV/       Course name: Linear and integer programming         L CO/10       Course name: Linear and integer programming						
<b>Course ID:</b> ÚMV/ <b>Course name:</b> Linear and integer programming						
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present						
Number of credits: 5						
Recommended semester/trimester of the course: 5.						
Course level: I.						
Prerequisities: ÚMV/ALGa/10						
Conditions for course completion: 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.						
Recommended literature: Ch. Papadimitriou – K. Steiglitz: Combinatorial Optimization: Algorithms and Complexity, 1984 R.J. Vanderbei, Linear Programming:Foundations and Extentions (Kluwer 2001), electronic version: http://www.princeton.edu/~rvdb/LPbook/						
Course language: Slovak						
Course assessment Total number of assessed students: 146						
A B C D E FX						
21.23 14.38 21.23 21.23 21.23 0.68						
Provides: doc. RNDr. Roman Soták, PhD., RNDr. Andrej Gajdoš						
Date of last modification: 27.02.2018						
Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.						

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of Science					
Course ID: ÚTVŠ/ LKSp/13	Course name: Summer Co	ourse-Rafting of TISA River			
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: Per study period: 36s Course method: present					
Number of credits: 2	2				
Recommended seme	ester/trimester of the cours	e:			
Course level: I., II.					
Prerequisities:					
<b>Conditions for cours</b> Conditions for course Attendance Final assessment: Ra	se completion: e completion: .ft control on the waterway (	attended/not attended)			
Learning outcomes: Learning outcomes: Students have knowl	edge of rafts (canoe) and the	eir control on waterway.			
Brief outline of the course:         Brief outline of the course:         1. Assessment of difficulty of waterways         2. Safety rules for rafting         3. Setting up a crew         4. Practical skills training using an empty canoe         5. Canoe lifting and carrying         6. Putting the canoe in the water without a shore contact         7. Getting in the canoe         8. Exiting the canoe         9. Taking the canoe out of the water         10. Steering         a) The pry stroke (on fast waterways)         b) The draw stroke         11. Capsizing         12. Commands					
Recommended literature:					
Course language:					
Course assessment Total number of assessed students: 142					
abs n					
	41.55 58.45				

Provides: Mgr. Peter Bakalár, PhD.

Date of last modification: 18.08.2017

Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.

University: P. J.	Šafárik Universi	ity in Košice			
Faculty: Faculty	of Science				
<b>Course ID:</b> ÚMV LTM/10	se ID: ÚMV/ Course name: Logic and set theory 10				
Course type, sco Course type: Lo Recommended Per week: 3 / 2 Course method	pe and the met ecture / Practice course-load (he Per study perio : present	hod: ours): od: 42 / 28			
Number of credi	i <b>ts:</b> 6				
Recommended s	emester/trimes	ter of the course	<b>::</b> 5.		
Course level: I.					
Prerequisities: Ú	JMV/MANb/19	or ÚMV/FRPb/1	9		
<b>Conditions for c</b> Exam	ourse completio	on:			
<b>Learning outcom</b> To obtain a basic proof.	nes: knowledge on t	the mathematical	notion of an in	finity. Analysis of	the notion of a
Brief outline of the Set as a mathem induction. Relati Finite and countar Sentential calcular predicate calcular Methods of proo	the course: atical formularized ons and mapping able sets. Cardin us, an axiomati us, examples. A fs in predicate c	zation of an infir gs. ality of continuu zation. Completr xiomatizations o alculus.	nity. Properties m. Elementary ness Theorem. f predicate cal	of the set of reals cardinal arithmetic Methods of proof culus and the not	<ul> <li>Mathematical</li> <li>cs.</li> <li>S. Language of</li> <li>ion of a proof.</li> </ul>
<b>Recommended I</b> E. Mendelson, Ir	iterature: ntroduction to M	athematical Logi	c, van Nostrand	d 1964.	
<b>Course language</b> Slovak	2:				
Course assessment Total number of assessed students: 544					
А	В	С	D	E	FX
12.5	16.18	19.85	24.26	17.28	9.93
Provides: RNDr. Jaroslav Šupina, PhD.					
Date of last mod	ification: 27.02	.2018			
Approved: Guar	anteeprof. RND	r. Katarína Cechl	árová, DrSc.		

U	Ŏ-£41 II.	-::					
University: P. J.	Safarik Univer	sity in Kosice					
Faculty: Faculty	of Science						
<b>Course ID:</b> ÚM MAE/10	V/ Course name: Macroeconomics						
Course type, sco Course type: L Recommended Per week: 2 / 1 Course method	ope and the me ecture / Practic course-load (l Per study per l: present	ethod: e nours): iod: 28 / 14					
Number of cred	its: 4						
Recommended	semester/trime	ster of the cours	<b>e:</b> 1., 3.				
<b>Course level:</b> I.							
Prerequisities:							
<b>Conditions for a</b> Final mark is given that evaluates the	course complete ven based on the verbal argume	ion: e results of the tes ent about the stud	sts written durin ied models.	g the semester and	d oral exam,		
Learning outco	mes:						
Brief outline of Basic macroeko godds markets. I in open econom	<b>the course:</b> nomic notions: Financial marke y. Models of lal	Gross domestic ts. IS-LM model i oour market. Infla	product, inflati in closed econor tion and econon	on, unemploymen ny. Open econom nic growth. High	nt Analysis of y. IS-LM model depth.		
Recommended 1. Olivier Blanc EUROPEAN PH 2. N.GREGORY Publishers 2009	literature: hard, Alessia A ERSPECTIVE, MANKIW, M	mighini, Francesc Pearson Educatio ACROECONOM	co Giavazzi:MA n, 2010 IICS, 7th Edition	CROECONOMIC	CS, A rsity,Worth		
<b>Course languag</b> Slovak and Engl	e: lish						
Course assessm Total number of	Course assessment Total number of assessed students: 75						
А	В	С	D	Е	FX		
21.33	14.67	21.33	22.67	13.33	6.67		
Provides: prof. I	RNDr. Katarína	Cechlárová, DrS	с.	1	1		
Date of last mod	lification: 27.0	2.2018					
Approved: Guar	anteeprof. RNI	Dr. Katarína Cech	lárová, DrSc.				
<u> </u>	1		,				

Faculty Faculty of Spience							
Faculty: Faculty of Science							
ourse ID: ÚMV/Course name: Mathematical analysis IIIAN1c/10							
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 4 / 2 Per study period: 56 / 28 Course method: present							
Number of credits: 7							
Recommended semester/trimester of the course: 3.							
Course level: I.							
Prerequisities: ÚMV/MANb/19							
Conditions for course completion: exam							
Learning outcomes: Understanding of the basic rigorous ideas of Mathematical Analysis.							
<b>Brief outline of the course:</b> Riemann integral. Functional series. Pointwise and uniform convergence. Power series. Fourier series. Euclidean spaces. Limits and continuity of real functions of several variables. Partial derivatives. Implicit function. Inverse mapping. Local global and constrained extrema							
Recommended literature: B. S. Thomson, J. B. Bruckner, A. M. Bruckner: Elementary Real Analysis, Prentice Hall, 2001. J. Doboš, M. Záskalická: Zbierka úloh z matematiky III, Elfa, Košice, 2002. Л. Д. Кудрявцев, А. Д. Кутасов, В. И. Чехлов, М. И. Шабунин: Сборник задач по математическому анализу, Наука, Москва, 1995. Oian Z. Analysis III: Integration Mathematical Institute Oxford 2011							
Course language: Slovak							
Course assessment Total number of assessed students: 266							
A B C D E FX							
2.63 4.14 7.89 16.54 47.37 21.43							
Provides: prof. RNDr. Jozef Doboš, CSc., RNDr. Lenka Halčinová, PhD.							
Date of last modification: 27.02.2018							
Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.							

University: P. J.	Šafárik Univers	ity in Košice					
Faculty: Faculty	of Science						
<b>Course ID:</b> ÚM MAN1d/10	MV/ Course name: Mathematical analysis IV						
Course type, sco Course type: L Recommended Per week: 4 / 2 Course method	pe and the met ecture / Practice course-load (h Per study peri : present	thod: ours): od: 56 / 28					
Number of cred	its: 7						
Recommended s	emester/trime	ster of the course	e: 4.				
Course level: I.							
Prerequisities: (	JMV/MAN1c/1	0 or ÚMV/MAN	2c/10				
Conditions for c exam	ourse completi	on:					
Learning outcor Understanding o	nes: f the basic rigor	ous ideas of Matl	nematical Analy	ysis.			
Brief outline of the Metric spaces. C Lebesgue measure versus Riemann	the course: omplete, compa re. Measurable integral. Calcul	ct and connected sets. Measurable ations of Lebesgu	sets. Rings sign functions. Leg le integrals. Ap	na-rings. Measure. esgue integral. Le plications.	Outer measure. ebesgue integral		
Recommended I B. S. Thomson, A. M. Bruckner, T. Neubrunn, B. B. Riečan, T. Ne G. S. Nelson, A Mathematical Sc	iterature: J. B. Bruckner, J. B. Bruckner, Riečan: Miera a ubrunn: Teória User-Friendly I ociety, 2015	A. M. Bruckner: B. S. Thomson: a integrál, Veda, E miery, Veda, Brat ntroduction to Le	Elementary Rea Real Analysis, I Bratislava, 1981 islava, 1992. besgue Measur	al Analysis, Prenti Prentice Hall, 199  e and Integration,	ce Hall, 2001. 7. American		
<b>Course languag</b> Slovak	2:						
Course assessme Total number of	ent assessed studen	ts: 222					
A	В	С	D	Е	FX		
4.05	4.95	13.06	22.52	42.79	12.61		
Provides: prof. F	RNDr. Jozef Dol	boš, CSc., RNDr.	Jaroslav Šupin	a, PhD.			
Date of last mod	lification: 27.02	2.2018					
Approved: Guar	anteeprof. RND	r. Katarína Cechl	árová, DrSc.				

University P I	University D. I. Šeférik University in Kočice							
En en lan En en la Seienen								
Faculty of Science								
<b>Course ID:</b> UM MANa/10	ANa/10 Course name: Mathematical analysis I							
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 3 Per study period: 42 / 42 Course method: present								
Number of crea	lits: 7							
Recommended	semester/trim	ester of the cours	<b>e:</b> 1.					
Course level: I.								
Prerequisities:								
<b>Conditions for</b> Two written tes continuous asse	<b>course comple</b> t during semete essment, written	t <b>ion:</b> r and activity stud and oral part of tl	ent to practice. France exam.	inal evaluation is	given by			
<b>Learning outco</b> The aim of the of real numbers	<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.							
Brief outline of Real numbers - odd, inverse), tr monotonicity, c	<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							
<ul> <li>Recommended literature:</li> <li>1. Brannan, D.: A First Course in Mathematical Analysis, Cambridge University Press, Cambridge 2006.</li> <li>2. Bruckner, A. M., Bruckner J. B., Thomson, B. S.: Real Analysis, Second Edition, ClassicalRealAnalysis.com, 2008.</li> <li>3. Zorich, V. A.: Mathematical Analysis I. Springer-Verlag 2002</li> </ul>								
<b>Course languag</b> Slovak	Course language: Slovak							
Course assessm Total number of	Course assessment Total number of assessed students: 1350							
А	A B C D E FX							
6.3	7.7	12.3	13.56	35.26	24.89			
Provides: doc. RNDr. Ondrej Hutník, PhD., RNDr. Lenka Halčinová, PhD., Mgr. Zuzana Ontkovičová								
Date of last modification: 27.02.2018								
Approved: Gua	Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.							

University: P. J. Šafa	arik Universi	ity in Košice					
Faculty: Faculty of S	Science						
<b>Course ID:</b> ÚMV/ MANb/10	Jourse ID: ÚMV/ IANb/10Course name: Mathematical analysis II						
Course type, scope a Course type: Lectu Recommended cou Per week: 4 / 3 Per Course method: pr	and the met re / Practice arse-load (he study perio esent	hod: ours): od: 56 / 42					
Number of credits:	8						
Recommended seme	ester/trimes	ter of the cours	e: 2.				
Course level: I.							
Prerequisities: ÚMV	//MANa/10						
<b>Conditions for cour</b> Two written test dur continuous assessme	se completions semeter a semet	on: and activity stude nd oral part of th	ent to practice. I e exam.	Final evaluation is	s given by		
Learning outcomes: The purpose of the c calculus of real func	ourse is to p tions of one	rovide introductor real variable and	ory knowledge i to develop com	n differential and putational skills i	integral n the field.		
Brief outline of the Limit and continuity the first and of high properties and beha functions. Newton in	course: of real func- ter orders, the vior of func- tegral and it	tions, elementar ne basic theorem tions. Indefinite s basic propertie	y functions. Dif s of differentia integral - basi s.	ferential calculus l calculus and the c methods for fin	- derivatives of eir use to study nding primitive		
Recommended liter 1. Brannan, D.: A Fi Cambridge 2006. 2. Bruckner, A. M., I ClassicalRealAnalys 3. Zorich, V. A.: Ma	ature: rst Course ir Bruckner J. 1 is.com, 2008 thematical A	n Mathematical A B., Thomson, B. 3. .nalysis I, Spring	Analysis, Cambr S.: Real Analys er-Verlag 2002.	ridge University P	ress, 1,		
<b>Course language:</b> Slovak							
<b>Course assessment</b> Total number of asse	essed student	ts: 867					
A	A B C D E FX						
8.65	8.3	12.57	18.69	36.68	15.11		
<b>Provides:</b> doc. RND Lučivjanská, PhD.	r. Ondrej Hu	tník, PhD., RND	r. Lenka Halčin	ová, PhD., Mgr. I	Katarína		
Date of last modific	ation: 27.02	.2018					
Approved: Guarante	eprof. RND	r. Katarína Cechl	árová, DrSc.				

University: P. J.	Šafárik Univer	sity in Košice					
Faculty: Faculty	Faculty: Faculty of Science						
Course ID: ÚM MIE/13	IV/ Course name: Microeconomics						
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 1 Per study period: 28 / 14 Course method: present							
Number of cred	lits: 4						
Recommended	semester/trime	ster of the cours	<b>e:</b> 1., 3.				
Course level: I.							
Prerequisities:							
<b>Conditions for</b> of The minimum n ability of verbal	course complet ecessary numbe argumentation	ion: er of points from t in the final oral e	ests written duri xam.	ng semester is 50°	%, plus the		
<b>Learning outco</b> Understanding of situations.	<b>Learning outcomes:</b> Understanding of basic principles of microeconomics and ability to apply them in practical situations.						
Brief outline of Economics and competition. Mo	<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						
Recommended 1. http://umv.sci materiály z deni 2. H.L. Varian, J 3. J.M. Perloff, 4. J. Sloman, Ec	literature: ence.upjs.sk/ceo nej tlače Intermediate Mi Microeconomic conomics, 6th Eo	chlarova/MIE/MI kroekonomics, W s, 6th Edtion, Add dition, Prentice H	E.htm - podklady /W Norton, 1993 dison Wesley, 20 all, 2006	y k prednáška, tes 12	sty na cvičenia,		
<b>Course languag</b> Slovak	je:						
Course assessment Total number of assessed students: 69							
А	В	C	D	Е	FX		
24.64	20.29	18.84	21.74	13.04	1.45		
<b>Provides:</b> prof.	Provides: prof. RNDr. Katarína Cechlárová, DrSc., RNDr. Veronika Jurková, PhD.						
Date of last modification: 27.02.2018							
Approved: Gua	Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.						
L							

		ity in Rosiec						
Faculty: Faculty	of Science							
<b>Course ID:</b> ÚM MSW/10	Durse ID: ÚMV/ SW/10Course name: Mathematical software							
Course type, sco Course type: L Recommended Per week: 1 / 2 Course method	ope and the met ecture / Practice course-load (h Per study peri l: present	thod: ours): od: 14 / 28						
Number of cred	its: 3							
Recommended	semester/trime	ster of the cours	<b>e:</b> 2.					
Course level: I.								
Prerequisities:								
<b>Conditions for a</b> Tests from both Given at the bas	course completi Excel and Mapl is of partial tests	on: e 3.						
To develop stud and modelling b environments – calculations Ma	ent's knowledge y solving of var environment of ple.	and skills to use ious types of mat spreadsheet, R la	numerical and gr hematical proble nguage or enviro	rafical representations in different r ms in different r nment of system	ations of data nathematical n of symbolic			
<b>Brief outline of</b> The creation and of equations and by solving of m and R language, programming te visualization. N	the course: d use of formula d systems of eq athematical prol , manipulation v cchniques, creati fanipulations of	as with mathema juations, utilize of olems, linear opti- with matrices and on of user funct mathematical esist linear algebra	tical functions, g of arithmetical, g imalization. Basi vectors, working ions and scripts, expressions, find	graphical and nu graphical and sto c description of g with data and graphical possi- ing solutions of and set theory in	imerical solving ochastic models Maple software data files. Basic ibilities for data			
inequalities, mai	thematical analy	sis, inical algebia	a, number, graph	and set theory h	n Maple.			
Recommended 1. Shingareva, I mathematics, Sp 2. Eberhart: Mag 3. Šťastný: Mate	thematical analy literature: .izárraga-Celaya oringer Wien Ne ole problem solv omatické a statis	: Maple and Mat wYork, 2007 ving handbook, U tické výpočty v N	hematica. A prob niversity of Ken dicrosoft Excelu	olem solving app tucky, 2009 , Computer Pres	n Maple. proach for s 2001			
Recommended 1. Shingareva, I mathematics, Sp 2. Eberhart: Maj 3. Šťastný: Mate Course languag Slovak	thematical analy literature: .izárraga-Celaya oringer Wien Ne ole problem solv matické a statis e:	: Maple and Mat wYork, 2007 ving handbook, U tické výpočty v N	hematica. A prob niversity of Ken dicrosoft Excelu	olem solving app tucky, 2009 , Computer Pres	n Maple. proach for s 2001			
Recommended 1. Shingareva, I mathematics, Sp 2. Eberhart: Maj 3. Šťastný: Mate Course languag Slovak Course assessm Total number of	thematical analy literature: .izárraga-Celaya oringer Wien Ne ple problem solv ematické a statis e: ent assessed studen	: Maple and Mat wYork, 2007 ving handbook, U tické výpočty v N	hematica. A prob Iniversity of Ken Microsoft Excelu	olem solving app tucky, 2009 , Computer Pres	n Maple. proach for s 2001			
Inequalities, mai Recommended 1. Shingareva, I mathematics, Sp 2. Eberhart: Mag 3. Šťastný: Mata Course languag Slovak Course assessm Total number of A	thematical analy literature: .izárraga-Celaya oringer Wien Ne ple problem solv ematické a statis e: ent assessed studen B	: Maple and Mat wYork, 2007 ving handbook, U tické výpočty v N ts: 146	hematica. A prob Iniversity of Ken Microsoft Excelu	blem solving app tucky, 2009 , Computer Pres	n Maple. proach for s 2001 FX			

Provides: doc. RNDr. Stanislav Lukáč, PhD., RNDr. Daniel Klein, PhD.

Date of last modification: 27.02.2018

Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.

University: P. J. Šafárik University in Košice								
Faculty: Faculty of Science								
Course ID: KG NJKG/07	<b>ID:</b> KGER/ <b>Course name:</b> Communicative Grammar in German Language							
Course type, sc Course type: F Recommended Per week: 2 Pe Course method	ope and the me Practice d course-load (h er study period: d: present	thod: ours): 28						
Number of cred	lits: 2							
Recommended	semester/trimes	ster of the cours	e:					
Course level: I.,	, II.							
Prerequisities:								
Conditions for a	Conditions for course completion:							
Learning outcomes:								
Brief outline of	the course:							
Recommended	literature:							
Course languag	ge:							
Course assessm Total number of	Course assessment Total number of assessed students: 48							
А	В	С	D	Е	FX			
54.17	54.17 12.5 10.42 4.17 10.42 8.33							
Provides: PaedDr. Ingrid Puchalová, PhD., Mgr. Barbora Molokáčová								
Date of last modification: 25.08.2017								
Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.								
University: P. J.	Šafárik Univers	ity in Košice						
---	---	--	---	---	---			
Faculty: Facult	y of Science							
<b>Course ID:</b> ÚM NMT/10	V/ Course na	ame: Numerical	mathematics					
Course type, sc Course type: I Recommended Per week: 4/3 Course metho	ope and the met Lecture / Practice d course-load (h B Per study peri d: present	thod: c ours): od: 56 / 42						
Number of crea	lits: 8							
Recommended	semester/trimes	ster of the cours	<b>e:</b> 4.					
Course level: I.								
Prerequisities:	ÚMV/MAN1c/1	0 and ÚMV/AL	G1c/10					
During semeste explaining of fu the oral part of a part of examina group A (40 po scale: A 90-1 Learning outco A student gets a errors accompar	r it is possible to inctioning of pro examination afte tion a student an ints at maximum 00 p., B 80-89 mes: incquainted with b nying approxima	obtain at maxim grammes devote r obtaining at lea swers two questi ) and one from th 9 p., C 70-79 p pasic numerical r ttions by numerica	tum 30 points for d to numerical m last 10 out of the n ons chosen by hi ne group B (30 pc o., D 60-69 p., nethods, with cor cal methods. He/s	creating, debugg ethods. A studen nentioned 30 poi m/her at random oints at maximum E 50-59 p., FX	ging and t is eligible for nts. On the oral , one from the n). Evaluation C 0-49 p. use and with sts his/her own			
<b>Brief outline of</b> Interpolation (d errors). Gaussia Method of succ	ammes correspon- the course: ordinary, genera an quadrature. In essive iterations.	lised). Numerica nterval-halving r Bernoulli's meth	al differentiation nethod. Regula f nod. LU-decompo	Numerical int falsi method. Ne osition. Method o	egration (rules, wton's method. of least squares.			
Recommended A. Ralston, A F A. Björck and C Dover Publicati	literature: irst Course in Nu G. Dahlquist, Nu ons, Mineola 20	umerical Analysi merical Methods 03	s, McGraw-Hill, , Prentice-Hall, E	New York 1965 Englewood Cliffs	1974; reprint			
Course languag Slovak	ge:							
Course assessm Total number of	ent f assessed studen	its: 159						
Α	В	С	D	Е	FX			
10.06	15.72	8.18	13.84	35.22	16.98			
Provides: prof.	RNDr. Mirko Ho	orňák, CSc.						
Date of last mo	dification: 27.02	2.2018						
Approved: Gua	ranteeprof. RND	r. Katarína Cech	lárová, DrSc.					

University: P. J. Šafá	rik University in Košice					
Faculty: Faculty of S	Faculty: Faculty of Science					
Course ID: ÚINF/ PAZ1a/15Course name: Programming, algorithms, and complexity						
Course type, scope a Course type: Lectur Recommended cou Per week: 3 / 4 Per Course method: pre	and the method: re / Practice rse-load (hours): study period: 42 / 56 esent					
Number of credits: 8	}					

**Recommended semester/trimester of the course:** 1.

Course level: I., II.

**Prerequisities:** 

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

Get a prescribed minimum number of points for activities of continuous assessment and for solving tasks during final practical test.

#### Learning outcomes:

### Brief outline of the course:

First part of the course (with turtle graphics): New Eclipse project, interactive communication with objects, simple turtle graphics, making user methods, local variables, variable types, arithmetic and logical expressions, random numbers, conditions, loops for and while, debugging, references, chars, Strings, arrays, instance variables, mouse events, simple array algorithms.

Second part of the course (without turtle graphics): Exceptions, using try-catch-finally block, files and directories, conversion from string variables, encapsulation, constructors with parameters, constructors hierarchy, getters and setters, interfaces, inheritance and polymorphism, abstract classes and methods, packages, visibility modifiers, sorting using Arrays.sort() and interfaces Comparable and Comparator, Java Collections Framework: autoboxing, interface List, ArrayList, LinkedList, interface Set and class HashSet, methods equals() and hashCode(), for-each loop, interface Map and class HashMap, custom Exceptions, rethrowing exceptions, exceptions' inheritance, Runtime exceptions, Errors, static variables and methods.

#### **Recommended literature:**

1. ECKEL, B.: Thinking in Java, Pearson, 2006, ISBN: 978-01-318-7248-6

2. PECINOVSKÝ, R.: OOP - Naučte se myslet a programovat objektově, Computer Press, a.s., Brno, 2010, ISBN: 978-80-251-2126-9

3. SIERRA, K., BATES, B. Head First Java, O'Reilly Media; 2nd edition, 2005, ISBN: 978-05-960-0920-5

#### **Course language:**

Slovak language, english language is required only to read Java API documentation.

Course assessment						
Total number of	f assessed studen	ts: 615				
А	В	С	D	Е	FX	
16.91	7.32	10.89	15.61	14.96	34.31	

**Provides:** RNDr. František Galčík, PhD., RNDr. Zuzana Bednárová, PhD., RNDr. Juraj Šebej, PhD.

**Date of last modification:** 20.02.2018

University: P. J. Šafá	rik University in Košice					
Faculty: Faculty of S	Faculty: Faculty of Science					
Course ID: ÚINF/ PAZ1b/15Course name: Programming, algorithms, and complexity						
Course type, scope a Course type: Lectur Recommended cou Per week: 2 / 4 Per Course method: pre	and the method: re / Practice rse-load (hours): study period: 28 / 56 esent					
Number of credits: 7						

**Recommended semester/trimester of the course:** 2.

Course level: I., II.

**Prerequisities:** ÚINF/PAZ1a/15

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

Get a given minimum number of points for activities of continuous assessment and for solving tasks during final practical test. The final practical test focuses on application of known algorithms and techniques of efficient algorithm design.

### Learning outcomes:

### Brief outline of the course:

Recursion and its applications, fractals. Binary search and simple sorting algorithm with quadratic time complexity. Time and space complexity of algorithms, analysis of time complexity, O-notation. Basic data structures and their applications: linked list, stack, and queue. Hierarchical data and their representation, trees, tree traversals, binary search trees. Arithmetic expressions, evaluation of an arithmetic expression. Efficient sorting algorithm: QuickSort, MergeSort, and HeapSort. Backtrack. Techniques "divide and conquer" and dynamic programming as methods for design of efficient algorithms. Basic graph algorithms for unweighted graphs (Breadth-first search, Depth-first search, graph connectivity, graph components, graph bridges, topological sort) and for weighted graphs (shortest paths: Bellman-Ford algorithm, Dijkstra algorithm, Floyd-Warshallov algorithm; minimum spanning tree: Prim algorithm, Kruskal algorithm). String algorithms. Greedy algorithms.

### **Recommended literature:**

WRÓBLEWSKI, P.: Algoritmy, datové struktury a programovací techniky. Computer Press, Brno, 2004

CORMEN, T.H., LEISERSON, Ch.E., RIVEST, R.L, STEIN, C. Introduction to Algorithms. The MIT Press, 2009.

KLEINBERG, J., TARDOS, E.: Algorithm Design, Cornell University, Addison Wesley, New York, 2006.

### Course language:

Slovak language, literature is available in english and czech language.

### **Course assessment**

Total number of assessed students: 1141

А	В	С	D	Е	FX	
12.18	6.49	9.29	19.98	22.61	29.45	
<b>Provides:</b> RNDr. František Galčík, PhD., PaedDr. Ján Guniš, PhD., RNDr. Zuzana Bednárová, PhD., RNDr. Juraj Šebej, PhD.						
Date of last modification: 20.02.2018						
Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.						

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: CJP/ PFAJ4/07	Course name: English Language of Natural Science
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: ce rse-load (hours): dy period: 28 esent
Number of credits: 2	
Recommended seme	ster/trimester of the course: 2.
Course level: I.	
Prerequisities:	
Conditions for cours Active participation i 2 classes at the most. Continuous assessme in English. In order to be admitted credit tests. The exam test results results represent the of The final grade for the	<b>e completion:</b> n class and completed homework assignments. Students are allowed to miss nt: 2 credit tests (presumably in weeks 6 and 13) and academic presentation ed to the final exam, a student has to score at least 65 % as a sum of both represent 50% of the final grade for the course, continuous assessment other 50% of the final grade.
A 93-100, B 86-92, C	C 79-85, D 72-78, E 65-71, FX 64 and less.
Learning outcomes: Enhancement of stud comprehension) in En competence (familiar improvement of stude functions) and impro of English for natural	ents' language skills (speaking, writing, reading and listening nglish for specific purposes and development of students' language ization with selected phonological, lexical and syntactic phenomena), ents' pragmatic competence (familiarization with selected language vement of presentation skills at B2 level (CEFR) with focus on terminology l science.
Brief outline of the c ANGLICKÝ JAZYK Veda a výskum. Odbe Planéta Zem. Naša sl Zemetrasenia, Sopeču Svetové oceány a ľad Životné prostredie a g Počasie a klíma. ANGLICKÝ JAZYK Veda a výskum. Odbe Životné prostredie. Z Sopečná činnosť, zem Great Pacific Garbag	ourse: PRE GEOGRAFOV: or geografia. nečná sústava. ná činnosť. ovce. geografia. PRE EKOLÓGOV: or ekológia. nečistenie a dôsledky. netrasenia. e 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 nomenklatúry. 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, Každodenná chémia. Laboratórium a jeho vybavenie. Periodická tabuľka. Hmota a jej premeny. Životné prostredie a chémia. ANGLICKÝ JAZYK PRE INFORMATIKOV: Veda a výskum, informatika. Život s počítačom. Typický PC. Zdravie a bezpečnosť, ergonomika. Programovanie. Emailovanie. Cybercrime. Trendy budúcnosti.

### **Recommended literature:**

study materials provided by the course instructor Royds-Irmak, D.E. Beginning Scientific English. Nelson, 1975. Velebná, B. English for Chemists. ffweb.ff.upjs.sk/vyuka// Redman, S.: English Vocabulary in Use, Pre-intermetdiate, 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-intermetdiate, Intermediate. Cambridge University Press, 2003.

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

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

### **Course language:**

Course assessment							
	i assessed studen	15. 2443					
А	A B C D E FX						
34.55	25.83 17.6 10.89 8.8 2.33						
Provides: Mgr.	Provides: Mgr. Zuzana Naďová, Mgr. Lenka Klimčáková						
Date of last modification: 06.02.2018							
Approved: Gua	aranteeprof. RND	r. Katarína Cech	lárová, DrSc.				

University: P. J. Š	University: P. J. Šafárik University in Košice						
Faculty: Faculty of Science							
Course ID: CJP/ PFAJAKA/07	Ourse ID: CJP/     Course name: Academic English       AJAKA/07     Course name: Academic English						
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: combined, present							
Number of credit	ts: 2						
Recommended se	emester/trimes	ster of the course	e:				
Course level: I., I	I., N						
Prerequisities:							
Conditions for co Active classroom and 12th/13th we assessment of test 72-78%, E 65-719	<b>Conditions for course completion:</b> Active classroom participation, 2 absences tolerated (4x45 min.) tolerated. 2 tests (5th/6th week and 12th/13th week), no retake. Minipresentation on chosen topic. Final evaluation- average assessment of tests and presentation. Grading scale: A 93-100%, B 86-92%, C 79-85%, D 72-78%, E 65-71%, FX 64% and less						
Learning outcom	ies:						
Brief outline of th	he course:						
Recommended life Seal B.: Academic T. Armer :Cambrid M. McCarthy M., Zemach, D.E, Run Olsen, A. : Active www.bbclearning Cambridge Acade	terature: c Encounters, ( idge English fo , O'Dell F Ac misek, L.A: Ac e Vocabulary, P genglish.com emic Content D	CUP, 2002 r Scientists, CUF cademic Vocabula cademic Writing, earson, 2013 Dictionary, CUP, 2	2011 ary in Use, CUP Macmillan 2005 2009	2008			
Course languages	:						
English language,	English language, level B2 according to CEFR.						
Total number of a	Course assessment Total number of assessed students: 344						
A	В	С	D	Е	FX		
30.81	23.55	15.99	11.05	7.27	11.34		
Provides: Mgr. Zu	uzana Naďová				<u> </u>		
Date of last modi	fication: 06.02	2.2018					
Approved: Guara	nteeprof. RND	r. Katarína Cechl	árová, DrSc.				

Chi, etsiej ( 1, ), Durwhite Chi, etsiej in teostee						
Faculty: Faculty of Science						
Course ID: CJP/ PFAJGA/07Course name: Communicative Grammar in English						
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: combined, present						
Number of credits: 2						
Recommended semester/trimester of the course:						
Course level: I., II., N						
Prerequisities:						
<b>Conditions for course completion:</b> Active classroom participation (max. 2x90 min. absences tolerated). 2 test (5th/6th and 12/13th week), no retake. Final evaluation- average assessment of tests. Grading scale: A 93-100%, B 86-92%, C 79-85%, D 72-78%, E 65-71%, FX 64% and less.						
Learning outcomes:						
Brief outline of the course:						
Recommended literature: Misztal M.: Thematic Vocabulary, Fragment, 1998 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						
Course language:						
Course assessment Total number of assessed students: 394						
A B C D E FX						
39.34         18.53         17.01         8.88         6.09         10.15						
Provides: Mgr. Lenka Klimčáková						
Date of last modification: 06.02.2018						
Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.						

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	Science
Course ID: CJP/ PFAJKKA/07	Course name: Communicative Competence in English
Course type, scope a Course type: Practi Recommended cou Per week: 2 Per stu Course method: co	and the method: ce rse-load (hours): ady period: 28 mbined, present
Number of credits: 2	2
Recommended seme	ester/trimester of the course:
Course level: I., II., I	N
Prerequisities:	
Active participation two classes at the mo 2 credit tests (presum on selected topics. Final grade will be c 65-71%, FX 64 % ar	in class and completed homework assignments. Students are allowed to miss ost. hably in weeks 6/7 and 12/13) and short academic presentations in English alculated as follows: A 93-100 %, B 86-92%, C 79-85%, D 72-78%, E hd less.
Learning outcomes: Uplatnenie a aktívne situáciách. Zdokonal vecnej kompetencie, výpovede, efektívne výpovede. Precvičov oslovenie), informatí časových vzťahov), r a hodnotiacich (napr budovania praktickej požiadavkám a kritér jazykov.	používanie svojich teoretických vedomostí v praktických komunikačných enie jazykových vedomostí a zručností študenta, rečovej, pragmatickej a predovšetkým zlepšujú komunikáciu, schopnosť prijímať a formulovať vyjadrovať svoje myšlienky ako aj orientovať sa v obsahovom pláne ranie rečových intencií kontaktných (napr. pozdravy, oslovenia, pozvanie, ívnych (napr. získavanie a podávanie informácií, vyjadrenie priestorových a regulačných (napr. prosba, poď akovanie, zákaz, pochvala, súhlas, nesúhlas) vyjadrenie vlastného názoru, stanoviska, želania, emócií). Výsledkom j jazykovej kompetencie majú byť vedomosti a zručnosti zodpovedajúce riám dokumentu Spoločný európsky referenčný rámec pre vyučovanie
Brief outline of the of Rodina, jej formy a p Vyjadrovanie pocitov Dom, bývanie a budu Formy a dialekty v a Život v meste a na vi	course: problémy v a dojmov úcnosť nglickom jazyku idieku

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

### **Recommended literature:**

www.bbclearningenglish.com

McCarthy M., O'Dell F.: English Vocabulary in Use, Upper-Intermediate. CUP, 1994. Misztal M.: Thematic Vocabulary. SPN, 1998.

Fictumova J., Ceccarelli J., Long T.: Angličtina, konverzace pro pokročilé. Barrister and Principal, 2008.

Peters S., Gráf T.: Time to practise. Polyglot, 2007.

Jones L.: Communicative Grammar Practice. CUP, 1985.

Alexander L.G.: Longman English Grammar. Longman, 1988.

### **Course language:**

English language, B2 level according to CEFR

### Course assessment

Total number of assessed students: 220

А	В	С	D	Е	FX
36.36	21.82	20.45	10.45	7.27	3.64

Provides: Mgr. Zuzana Naďová

Date of last modification: 06.02.2018

University: P. J. Šafá	rik University in Košice					
Faculty: Faculty of S	cience					
Course ID: ÚMV/	MV/ Course name: Math proseminar					
PMA/18						
Course type, scope a	nd the method:					
Course type: Practic						
Recommended coul	rse-load (hours):					
Course method: pre	ay perioa: 20					
N 1 C 14 C						
Number of credits: (						
Recommended seme	ster/trimester of the cours	e: 1.				
Course level: I.						
Prerequisities:						
Conditions for cours	e completion:					
Learning outcomes:						
Brief outline of the c	ourse:					
Recommended litera	iture:					
Course language:						
Course assessment						
Total number of asses	ssed students: 0					
	abs n					
0.0 0.0						
Provides: RNDr. Igor Fabrici, Dr. rer. nat., RNDr. Lenka Halčinová, PhD.						
Date of last modifica	tion: 27.04.2018					
Approved: Guarantee	eprof. RNDr. Katarína Cech	lárová, DrSc.				

University: P. J.	Šafárik Univers	ity in Košice						
Faculty: Faculty	Faculty: Faculty of Science							
Course ID: ÚMV POV/10	V/ Course na	me: Practical op	perations researc	ch				
Course type, sco Course type: Le Recommended Per week: 1 / 2 Course method	Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 1 / 2 Per study period: 14 / 28 Course method: present							
Number of credi	its: 3							
Recommended s	emester/trimes	ter of the cours	e: 6.					
Course level: I.								
Prerequisities:								
Conditions for co Based on evaluat	ourse completi tion of individua	on: al projects.						
Learning outcom To provide the ba solving the probl	nes: asics of mathem ems of uni- and	atical modelling multicriterial op	of real-world p timization	roblems and selec	eted methods of			
Brief outline of t Elements of decis Linear and nonlin	the course: sion theory, gam near models. M	es against nature ulticriterial optim	. Mathematical nization.	modelling of real-	world problems.			
Recommended li electronic inform	iterature: nation sources							
Course language Slovak	2:							
Course assessme Total number of	ent assessed studen	ts: 32						
А	В	С	D	Е	FX			
71.88	18.75	6.25	0.0	3.13	0.0			
Provides: prof. R	NDr. Tomáš M	adaras, PhD.			•			
Date of last mod	ification: 27.02	.2018						
Approved: Guara	anteeprof. RND	r. Katarína Cech	lárová, DrSc.					

University, D. I. Šeférik University in Kočice								
Enculty: F. J.	. Salalik							
Faculty: Faculty				1 1				
PSTa/10		ourse na	ame: Probability	and statistics I				
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present								
Number of crea	Number of credits: 5							
Recommended	semest	er/trimes	ster of the cours	e: 4.				
Course level: I.								
Prerequisities:	ÚMV/N	IAN1c/1	0 or ÚMV/MAN	2c/10 or ÚMV/	/MAN3c/10			
<b>Conditions for</b> To obtain at leas Total evaluation	<b>course</b> st 50% i n based	completi in two wi on writte	on: ritten tests during n tests and oral e	the semester.				
Learning outco To obtain know characteristics,	mes: ledge of special	f the axic types of o	matic theory of p distributions and	robability, rand their application	lom variables and ns.	their		
Brief outline of Probability spa independence. F skewness Disc their properties Transformation Poisson, geome theorem.	the cou ace, de Random crete and s. Relat of rand etric, un	Irse: finitions variables l absolute ion betw lom varia niform, e	and properties s, their distributio ely continuous di veen characterist ables. Special typ exponential, norr	of probabilit n function and c stributions. Qua ic function and bes of distribut nal, chí-square	y. Conditional p haracteristics. Me antile and characte d moments. Med ions with applicat , Student, Fisher	probability and an, variance and eristic functions, lian and mode. tions (binomial, ). Central limit		
Recommended 1. Skřivánková 2. DeGroot, M. 3. Evans, M. J., W. H. Freeman, 4. Riečan et al.:	literatu V.: Prav H., Sch Rosent 2009 Pravde	ire: /depodob ervish, M hal, J. S.: podobno	nosť v príkladoc 1. J.: Probability Probability and sť a matematická	h, UPJŠ, Košico and Statistics, 4 Statistics: The S štatistika, Alfa	e, 2006 (in Slovak th ed., Pearson, B Science of Uncerta , Bratislava, 1984	c) oston, 2012 ainty, 2nd Ed., (in Slovak)		
<b>Course languag</b> Slovak	ge:							
Course assessm Total number of	ent f assesse	ed studen	its: 334					
А	-	В	С	D	Е	FX		
8.08	14	.37	17.37	25.75	23.95	10.48		
Provides: RND	r. Danie	l Klein, I	PhD.					
Date of last mo	dification	on: 27.02	2.2018					

Faculty: Faculty of Science         Course ID: ÚMV/ PSTb/10       Course name: Probability and statistics II         Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28         Course method: present         Number of credits: 5         Recommended semester/trimester of the course: 5.         Course level: 1, II.         Prerequisities:         Conditions for course completion: To obtain at least 50% in two written tests during the semester. Total evaluation based on written tests and oral exam.         Learning outcomes: Student should obtain the knowledge about basic statistical methods and the ability to apply theoretical knowledge in practical problems solving.         Brief outline of the course: Random vectors, their distributions and characteristics. Joint and marginal distributions. Correlation and regression, properties of correlation coefficient. Random sample, sampling distributions and characteristics. Some important statistics and their distributions. Point estimators and their properties. Maximum likelihood method. Interval estimates, confidence interval construction. Testing of statistical hypothesis, critical region, level of significance. Methods for searching optimal critical regions. Some important parametric and nonparametric tests.         Recommended literature: 1. Skfivánková V: Pravdepodobnosť v prikladoch, UPJŠ, Košice, 2006 (in Slovak)         2. Skrivánková V: Hancová M.: Statistika v prikladoch, UPJŠ, Košice, 2005 (in Slovak)         3. CASELLA, G, BERGER, R., Statistical Inference, 2nd cd., Duxbury Press, 2002 <th>University: P. J.</th> <th>Šafárik Univer</th> <th>sity in Košice</th> <th></th> <th></th> <th></th>	University: P. J.	Šafárik Univer	sity in Košice					
Course ID: ÚMV/ PSTb/10       Course name: Probability and statistics II         Course type, scope and the method: Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per weck: 2 / 2 Per study period: 28 / 28 Course method: present         Number of credits: 5         Recommended semester/trimester of the course: 5. Course level: I., II.         Prerequisities: Conditions for course completion: To obtain at least 50% in two written tests during the semester. Total evaluation based on written tests and oral exam.         Learning outcomes: Student should obtain the knowledge about basic statistical methods and the ability to apply theoretical knowledge in practical problems solving.         Brief outline of the course: Random vectors, their distributions and characteristics. Joint and marginal distributions. Correlation and regression, properties of correlation coefficient. Random sample, sampling distributions and characteristics. Some important statistics and their distributions. Point estimators and their distributions. Some important statistica literade: interval construction. Testing of statistical hypothesis, critical region, level of significance. Methods for searching optimal critical regions. Some important parametric and nonparametric tests.         Recommended literature: 1. Skrivánková V Pravdepodobnosť v prikladoch, UPJŠ, Košice, 2006 (in Slovak) 2. CASELLA, G., BERGER, R., Statistical Inference, 2nd ed., Duxbury Press, 2002 4. DeGroot, M. H., Schervish, M. J.: Probability and Statistics, 4th ed., Pearson, Boston, 2012 5. Utts, JM., Heckard, R. F.: Mind of Statistics, 4th ed., Pearson, Boston, 2012 5. Utts, JM., Heckard, R. F	Faculty: Faculty	of Science						
Course type: Lecture / Practice         Recommended course-load (hours):         Per week: 2 / 2 Per study period: 28 / 28         Course method: present         Number of credits: 5         Recommended semester/trimester of the course: 5.         Course level: I., II.         Prerequisities:         Conditions for course completion:         To obtain at least 50% in two written tests during the semester. Total evaluation based on written tests and oral exam.         Learning outcomes:         Student should obtain the knowledge about basic statistical methods and the ability to apply theoretical knowledge in practical problems solving.         Brief outline of the course:         Random vectors, their distributions and characteristics. Joint and marginal distributions. Correlation and regression, properties of correlation coefficient. Random sample, sampling distributions and characteristics. Some important statistics and their distributions. Point estimators and their properties. Maximum likelihood method. Interval estimates, confidence: interval construction. Testing of statistical hypothesis, critical region, level of significance. Methods for searching optimal critical regions. Some important parametric and nonparametric tests.         Recommended literatre:       1. Skřivánková V: Pravdepodohosť v prikladoch, UPJŠ, Košice, 2006 (in Slovak)         2. Skřivánková V: Pravdepodohosť v prikladoch, UPJŠ, Košice, 2005 (in Slovak)         3. CASELLA, G., BERGER, R., Statistical Inference, 2nd ed., Duxbury Press, 2002         4. DeGroot, M.	<b>Course ID:</b> ÚM PSTb/10	V/ Course i	ame: Probability	and statistics II				
Number of credits: 5         Recommended semester/trimester of the course: 5.         Course level: 1., II.         Prerequisities:         Conditions for course completion:         To obtain at least 50% in two written tests during the semester. Total evaluation based on written tests and oral exam.         Learning outcomes:         Student should obtain the knowledge about basic statistical methods and the ability to apply theoretical knowledge in practical problems solving.         Brief outline of the course:         Random vectors, their distributions and characteristics. Joint and marginal distributions. Correlation and regression, properties of correlation coefficient. Random sample, sampling distributions and characteristics. Some important statistics and their distributions. Point estimators and their properties. Maximum likelihood method. Interval estimates, confidence interval construction. Testing of statistical hypothesis, critical region, level of significance. Methods for searching optimal critical regions. Some important parametric and nonparametric tests.         Recommended literature:       1. Skřivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2006 (in Slovak)         2. Sklivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2005 (in Slovak)       2. Sklivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2005 (in Slovak)         3. CASELLA, G., BERGER, R., Statistical Inference, 2nd ed., Duxbury Press, 2002       4. DeGroot, M. H., Schervish, M. J.: Probability and Statistics, 4th ed., Pearson, Boston, 2012         5. Utts, J.M., Heckard, R.F.: Mind od Statistics, Sth ed., Thomson Bro	Course type, sc Course type: I Recommended Per week: 2 / 2 Course metho	ope and the m Lecture / Practic l course-load ( 2 Per study per d: present	ethod: ce hours): riod: 28 / 28					
Recommended semester/trimester of the course: 5.         Course level: I., II.         Prerequisities:         Conditions for course completion:         To obtain at least 50% in two written tests during the semester. Total evaluation based on written tests and oral exam.         Learning outcomes:         Student should obtain the knowledge about basic statistical methods and the ability to apply theoretical knowledge in practical problems solving.         Brief outline of the course:         Random vectors, their distributions and characteristics. Joint and marginal distributions. Correlation and regression, properties of correlation coefficient. Random sample, sampling distributions and characteristics. Some important statistics and their distributions. Point estimators and their properties. Maximum likelihood method. Interval estimates, confidence interval construction. Testing of statistical hypothesis, critical region, level of significance. Methods for searching optimal critical regions. Some important parametric and nonparametric tests.         Recommended literature:         1. Skřivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2006 (in Slovak)         2. Skřivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2005 (in Slovak)         3. CASELLA, G., BERGER, R., Statistical Inference, 2nd ed., Duxbury Press, 2002         4. DeGroot, M. H., Schervish, M. J.: Probability and Statistics, 4th ed., Pearson, Boston, 2012         5. Utts, J.M., Heckard, R.F.: Mind od Statistics, 5th ed., Tho	Number of credits: 5							
Course level: 1., II.         Prerequisities:         Conditions for course completion:         To obtain at least 50% in two written tests during the semester. Total evaluation based on written tests and oral exam.         Learning outcomes:         Student should obtain the knowledge about basic statistical methods and the ability to apply theoretical knowledge in practical problems solving.         Brief outline of the course:         Random vectors, their distributions and characteristics. Joint and marginal distributions. Correlation and regression, properties of correlation coefficient. Random sample, sampling distributions. Point estimators and their properties. Maximum likelihood method. Interval estimates, confidence interval construction. Testing of statistical hypothesis, critical region, level of significance. Methods for searching optimal critical regions. Some important parametric and nonparametric tests.         Recommended literature:         1. Skřivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2006 (in Slovak)         Skivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2005 (in Slovak)         Skřivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2005 (in Slovak)         Skřivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2005 (in Slovak)         Skřivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2005 (in Slovak)         Skřivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2005 (in Sl	Recommended	semester/trim	ester of the cours	<b>e:</b> 5.				
Prerequisities:         Conditions for course completion:         To obtain at least 50% in two written tests during the semester. Total evaluation based on written tests and oral exam.         Learning outcomes:         Student should obtain the knowledge about basic statistical methods and the ability to apply theoretical knowledge in practical problems solving.         Brief outline of the course:         Random vectors, their distributions and characteristics. Joint and marginal distributions. Correlation and regression, properties of correlation coefficient. Random sample, sampling distributions and characteristics. Some important statistics and their distributions. Point estimators and their properties. Maximum likelihood method. Interval estimates, confidence interval construction. Testing of statistical hypothesis, critical region, level of significance. Methods for searching optimal critical regions. Some important parametric and nonparametric tests.         Recommended literature:         1. Skřivánková V.: Pravdepodobnosť v prikladoch, UPJŠ, Košice, 2006 (in Slovak)         2. Skřivánková V.: BERGER, R., Statistical Inference, 2nd ed., Duxbury Press, 2002         4. DeGroot, M. H., Schervish, M. J.: Probability and Statistics, 4th ed., Pearson, Boston, 2012         5. Utts, J.M., Heckard, R.F.: Mind od Statistics, 5th ed., Thomson Brooks/Cole, 2014         6. Anděl J.: Základy matematické statistiky, MatfyzPress, Praha, 2011 (in Czech)         Course language:         Slovak       Slovak	Course level: I.	, II.						
Conditions for course completion:         To obtain at least 50% in two written tests during the semester. Total evaluation based on written tests and oral exam.         Learning outcomes:         Student should obtain the knowledge about basic statistical methods and the ability to apply theoretical knowledge in practical problems solving.         Brief outline of the course:         Random vectors, their distributions and characteristics. Joint and marginal distributions. Correlation and regression, properties of correlation coefficient. Random sample, sampling distributions and characteristics. Some important statistics and their distributions. Point estimators and their properties. Maximum likelihood method. Interval estimates, confidence interval construction. Testing of statistical hypothesis, critical region, level of significance. Methods for searching optimal critical regions. Some important parametric and nonparametric tests.         Recommended literature:       1         1. Skřivánková VHančová M.: Štatistika v príkladoch, UPJŠ, Košice, 2006 (in Slovak)         2. Skřivánková VHančová M.: Statistical Inference, 2nd ed., Duxbury Press, 2002         4. DeGroot, M. H., Schervish, M. J.: Probability and Statistics, 4th ed., Pearson, Boston, 2012         5. Utts, J.M., Heckard, R.F.: Mind od Statistics, 5th ed., Thomson Brooks/Cole, 2014         6. Anděl J.: Základy matematické statistiky, MatfyzPress, Praha, 2011 (in Czech)         Course language: Slovak         Slovak         Slovak         A B C D E FX <td>Prerequisities:</td> <td></td> <td></td> <td></td> <td></td> <td></td>	Prerequisities:							
Learning outcomes:         Student should obtain the knowledge about basic statistical methods and the ability to apply theoretical knowledge in practical problems solving.         Brief outline of the course:         Random vectors, their distributions and characteristics. Joint and marginal distributions. Correlation and regression, properties of correlation coefficient. Random sample, sampling distributions and characteristics. Some important statistics and their distributions. Point estimators and their properties. Maximum likelihood method. Interval estimates, confidence interval construction. Testing of statistical hypothesis, critical region, level of significance. Methods for searching optimal critical regions. Some important parametric and nonparametric tests.         Recommended literature:       1. Skřivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2006 (in Slovak)         2. Skřivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2005 (in Slovak)       3. CASELLA, G., BERGER, R., Statistical Inference, 2nd ed., Duxbury Press, 2002         4. DeGrotot, M. H., Schervish, M. J.: Probability and Statistics, 4th ed., Pearson, Boston, 2012       5. Utts, J.M., Heckard, R.F.: Mind od Statistics, 5th ed., Thomson Brooks/Cole, 2014         6. Anděl J.: Základy matematické statistiky, MatfyzPress, Praha, 2011 (in Czech)       Course assessment         Total number of assessed students: 175       A       B       C       D       E       FX         20.0       21.14       17.71       24.0       10.86       6.29       Provides: RNDr. Martina Hančová, PhD. <td><b>Conditions for</b> To obtain at least tests and oral ex</td> <td><b>course comple</b> st 50% in two v cam.</td> <td><b>tion:</b> vritten tests during</td> <td>the semester. T</td> <td>otal evaluation ba</td> <td>sed on written</td>	<b>Conditions for</b> To obtain at least tests and oral ex	<b>course comple</b> st 50% in two v cam.	<b>tion:</b> vritten tests during	the semester. T	otal evaluation ba	sed on written		
Brief outline of the course:         Random vectors, their distributions and characteristics. Joint and marginal distributions.         Correlation and regression, properties of correlation coefficient. Random sample, sampling distributions and characteristics. Some important statistics and their distributions. Point estimators and their properties. Maximum likelihood method. Interval estimates, confidence interval construction. Testing of statistical hypothesis, critical region, level of significance. Methods for searching optimal critical regions. Some important parametric and nonparametric tests.         Recommended literature:         1. Skřivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2006 (in Slovak)         2. Skřivánková VHančová M.: Štatistika v príkladoch, UPJŠ, Košice, 2005 (in Slovak)         3. CASELLA, G., BERGER, R., Statistical Inference, 2nd ed., Duxbury Press, 2002         4. DeGroot, M. H., Schervish, M. J.: Probability and Statistics, 4th ed., Pearson, Boston, 2012         5. Utts, J.M., Heckard, R.F.: Mind od Statistics, 5th ed., Thomson Brooks/Cole, 2014         6. Anděl J.: Základy matematické statistiky, MatfyzPress, Praha, 2011 (in Czech)         Course assessment         Total number of assessed students: 175         A       B       C       D       E       FX         20.0       21.14       17.71       24.0       10.86       6.29         Provides: RNDr. Martina Hančová, PhD.	Learning outco Student should theoretical know	<b>mes:</b> obtain the knov vledge in practi	ledge about basic cal problems solv	statistical meth	ods and the ability	to apply		
Recommended literature:1. Skřivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2006 (in Slovak)2. Skřivánková VHančová M.: Štatistika v príkladoch, UPJŠ, Košice, 2005 (in Slovak)3. CASELLA, G., BERGER, R., Statistical Inference, 2nd ed., Duxbury Press, 20024. DeGroot, M. H., Schervish, M. J.: Probability and Statistics, 4th ed., Pearson, Boston, 20125. Utts, J.M., Heckard, R.F.: Mind od Statistics, 5th ed., Thomson Brooks/Cole, 20146. Anděl J.: Základy matematické statistiky, MatfyzPress, Praha, 2011 (in Czech)Course language: SlovakSlovakCourse assessment Total number of assessed students: 175ABCDEFX20.021.1417.7124.010.866.29	Brief outline of Random vector Correlation and distributions and and their prop construction.Tes searching optim	the course: rs, their distri- l regression, p d characteristic erties. Maxim sting of statisti al critical regio	butions and cha properties of corr s. Some important um likelihood m cal hypothesis, cr ns. Some importa	racteristics. Jo elation coeffici statistics and th ethod. Interval itical region, le nt parametric an	int and margina ent. Random sar eir distributions. I estimates, confi vel of significanc id nonparametric t	l distributions. nple, sampling Point estimators idence interval e. Methods for ests.		
Course language: SlovakCourse assessment Total number of assessed students: 175ABCDEFX20.021.1417.7124.010.866.29Provides: RNDr. Martina Hančová, PhD.	Recommended 1. Skřivánková 2. Skřivánková 3. CASELLA, O 4. DeGroot, M. 5. Utts, J.M., Ho 6. Anděl J.: Zák	literature: V.: Pravdepodo VHančová M. G., BERGER, F H., Schervish, eckard, R.F.: M lady matematic	bnosť v príkladoc : Štatistika v príkl , Statistical Infer M. J.: Probability ind od Statistics, 5 ké statistiky, Mati	h, UPJŠ, Košice adoch, UPJŠ, K ence, 2nd ed., D and Statistics, 4 5th ed., Thomson fyzPress, Praha,	e, 2006 (in Slovak ošice, 2005 (in Slovak ouxbury Press, 200 th ed., Pearson, Bo n Brooks/Cole, 20 2011 (in Czech)	) ovak) )2 oston, 2012 14		
Course assessment Total number of assessed students: 175ABCDEFX20.021.1417.7124.010.866.29Provides: RNDr. Martina Hančová, PhD.	Course languag Slovak	ge:						
Initial number of assessed students: 175         A       B       C       D       E       FX         20.0       21.14       17.71       24.0       10.86       6.29         Provides: RNDr. Martina Hančová, PhD.       E       E       FX	Course assessm	ent	175					
A         B         C         B         FA           20.0         21.14         17.71         24.0         10.86         6.29           Provides: RNDr. Martina Hančová, PhD.         E         FA         E         FA	$\Delta$	assessed stude	$\frac{\text{nts: 1/5}}{C}$	D	F	FX		
20.0         21.14         17.71         24.0         10.80         0.29           Provides: RNDr. Martina Hančová, PhD.	20.0	21.14	17.71	24.0	10.86	6 20		
	Drovidos: DND	r Martina Uan		27.0	10.00	0.27		
Data of last modification: 26.00.2017	Data of last me	difications 260	0va, FIID.					

University: P. J	. Šafárik Univers	ity in Košice					
Faculty: Faculty of Science							
<b>Course ID:</b> ÚM SDR/10	IV/ Course na	me: Seminar on	differential equ	ations			
Course type, sc Course type: I Recommended Per week: 2 Pe Course metho	ope and the met Practice d course-load (h er study period: d: present	thod: ours): 28					
Number of crea	lits: 2						
Recommended	semester/trimes	ster of the cours	<b>e:</b> 6.				
Course level: I.							
Prerequisities:							
<b>Conditions for</b> Final grading representation of	<b>course completi</b> eflects the activity a paper (or paper	<b>on:</b> y of the student d rs).	luring the semes	ter and the qualit	ty of		
<b>Learning outco</b> Gain, extend kr	omes: nowledge of some	e areas in the the	ory of differenti	al and difference	equations.		
Brief outline of The work in ser equations exten	the course: ninar consists of ding knowledge of	study of selected obtained in the co	topics in the the urse Differential	eory of differential equations, and the	al and difference heir presentation.		
<b>Recommended</b> Journal literatur	<b>literature:</b> re.						
<b>Course languag</b> Slovak	ge:						
Course assessme Total number of	<b>lent</b> f assessed studen	ts: 5					
А	В	С	D	Е	FX		
100.0	0.0	0.0	0.0	0.0	0.0		
Provides: Mgr.	Jozef Kiseľák, P	hD.					
Date of last mo	dification: 27.02	2.2018					
Approved: Gua	ranteeprof. RND	r. Katarína Cech	lárová, DrSc.				
L							

University: P. J. Ša	fárik Univers	ity in Košice								
<b>Faculty:</b> Faculty of	Faculty: Faculty of Science									
Course ID: ÚMV/ SHM/10	Course na	me: Seminar on	history of mathe	ematics						
Course type, scope Course type: Prac Recommended co Per week: 2 Per s Course method: p	Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present									
Number of credits: 2										
Recommended sen	nester/trimes	ster of the cours	<b>e:</b> 6.							
Course level: I., II.										
Prerequisities:										
Conditions for course completion: Homework, presentation on the chosen topic during the seminar. More than 91 points - evaluation of A. 81-90 points - evaluation of B. 71-80 points - rating C. 61-70 points - evaluation of D. 51-60 points - evaluation of E. Less than 50 points - FX evaluation.										
Learning outcomes Students get an ove and selected terms thinking.	s: erview of the and about par	history of the de callel between ph	velopment of cert sylogenesis and o	tain mathematica ntogenesis of ma	l disciplines thematical					
<b>Brief outline of the</b> Mathematics in Ea (Arabia, China, Inc Beginning of Mode	e <b>course:</b> arly Civilizati dia). Medieva ern Mathemat	ons. Greek Math Il European Mat ics.	nematics. Mather hematics. The Re	natics in the Nea enaissance of Ma	ar and Far East athematics. The					
Recommended literature: Burton, D. M.: The History of Mathematics: An Introduction. McGraw–Hill, 2007. Devlin, K.: Jazyk matematiky. Dokořán, 2002 (in czech) Kolman, A.: Dejiny matematiky ve starověku. Academia, Praha, 1968 (in slovak) Juškevič, A. P.: Dejiny matematiky ve středověku. Academia, Praha 1977 (in slovak) Znám,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										
Course assessment Total number of ass	t sessed studen	ts: 144								
A	В	С	D	Е	FX					
80.56	6.94	6.94	2.78	2.78	0.0					

Provides: RNDr. Ingrid Semanišinová, PhD.

Date of last modification: 27.02.2018

University: P. J	. Šafárik Univer	sity in Košice						
Faculty: Facult	y of Science							
<b>Course ID:</b> ÚM SMA/10	IV/ Course r	ame: Seminar in	macroeconomic	2S				
Course type, so Course type: 1 Recommended Per week: 2 P Course metho	cope and the mo Practice d course-load ( er study period d: present	ethod: hours): l: 28						
Number of cree	Number of credits: 2							
Recommended	semester/trim	ester of the cours	<b>e:</b> 2., 4.					
Course level: I.								
Prerequisities:	ÚMV/MAE/10							
<b>Conditions for</b> Active work du	course completring semester, a	t <b>ion:</b> cceptable results c	of projects and t	heir presentation	in the class.			
Learning outco Extend the know	omes: wledge acquired	l in Macroeconom	ics.					
Brief outline of The work in se collecting and i	<b>the course:</b> minar consists nterpreting data	of study of extend , work with recent	led topics in Ma t journal and ne	acroeconomics, p wspapers publicat	rojects aimed at tions.			
Recommended [B] Olivier Bla: EUROPEAN P [M] N.GREGO Publishers 2009 Newspapers an	literature: nchard, Alessia ERSPECTIVE, RY MANKIW, d journals, in pa	Amighini, France Pearson Educatio MACROECONO rticular The Econ	sco Giavazzi:M n, 2010 MICS, 7th Edit omist, Hospodá	ACROECONOM ion, Harvard Univ rske noviny, SME	IICS, A versity,Worth E.			
<b>Course langua</b> Slovak	ge:							
Course assessm Total number o	nent f assessed stude	nts: 54						
А	В	С	D	Е	FX			
25.93	44.44	16.67	5.56	5.56	1.85			
Provides: prof.	RNDr. Katarína	Cechlárová, DrS	с.					
Date of last mo	dification: 27.0	2.2018						
Approved: Gua	ranteeprof. RN	Dr. Katarína Cech	lárová, DrSc.					
		,						

University: P. J.	University: P. J. Šafárik University in Košice							
Faculty: Faculty	Faculty: Faculty of Science							
<b>Course ID:</b> ÚM SMI/10	se ID: ÚMV/ Course name: Seminar in microeconomics							
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present								
Number of crea	lits: 2							
Recommended	semester/trime	ster of the cours	e: 2., 4.					
Course level: I.								
Prerequisities:	ÚMV/MIE/13							
Conditions for Active work du	course complet ring semester, a	<b>ion:</b> cceptable results c	of projects and th	eir presentation i	n the class.			
Learning outco Extend the know	mes: wledge and skill	s obtained in the s	subject Microeco	nomics.				
Brief outline of The work in second collecting and in	<b>the course:</b> minar consists on terpreting data	of study of extend work with recent	led topics in Mic	croeconomics, pr spapers publicat	ojects aimed at ions.			
Recommended 1. Newpapers a 2. H.L. Varian, Microeconomic 3. J.M. Perloff, 4. J. Sloman, Ec	<b>literature:</b> nd journals Mikroekonomie es, W.W. Norton Microeconomic conomics, 6th E	, Victoria Publish , 1993 s, 6th Edtion, Add dition, Prentice H	ing, Praha, 1995/ lison Wesley, 20 all, 2006	' Varian: Interme	diate			
Course languag Slovak or Engli	ge: sh							
Course assessm Total number of	ent f assessed stude	nts: 42						
А	В	C	D	Е	FX			
40.48	14.29	21.43	16.67	7.14	0.0			
Provides: prof.	RNDr. Katarína	Cechlárová, DrSo	2.					
Date of last mo	dification: 27.0	2.2018						
Approved: Gua	ranteeprof. RNI	Dr. Katarína Cechl	lárová, DrSc.					

University: P. J.	Šafárik Univers	ity in Košice						
Faculty: Faculty	Faculty: Faculty of Science							
Course ID: ÚM SVK/10	V/ Course na	me: Students sci	ientific conferen	ce				
Course type, sco Course type: Recommended Per week: Per Course method	ope and the met course-load (h study period: l: present	thod: ours):						
Number of cred	its: 4							
Recommended s	semester/trimes	ster of the cours	e:					
Course level: 1.,	II							
Prerequisities:								
Conditions for c	ourse completi	on:						
Learning outcor Individual scient public presentati	<b>nes:</b> tific work of stu on.	dents. Publishing	s of obtained resu	ılts in a written fo	orm and as a			
Brief outline of	the course:							
<b>Recommended I</b> With respect to t	l <b>iterature:</b> he research prol	plematics (article	in journals, bool	ks).				
<b>Course languag</b> Slovak or Englis	e: sh							
Course assessme Total number of	e <b>nt</b> assessed studen	ts: 86						
A	В	С	D	Е	FX			
98.84	1.16	0.0	0.0	0.0	0.0			
Provides: prof. F	RNDr. Tomáš M	adaras, PhD.		<u>.</u>	•			
Date of last mod	lification: 27.02	2.2018						
Approved: Guar	anteeprof. RND	r. Katarína Cech	lárová, DrSc.					

University: P. J	. Šafárik Univers	sity in Košice			
Faculty: Facult	y of Science				· · · · · · · · · · · · · · · · · · ·
<b>Course ID:</b> ÚIN TVY/15	NF/ Course na	ame: Computabil	ity theory		
Course type, sc Course type: 1 Recommended Per week: 2 / Course metho	ope and the me Lecture / Practice d course-load (h l Per study peri d: present	thod: cours): od: 28 / 14			
Number of cree	lits: 4				
Recommended	semester/trime	ster of the cours	e: 5.		
Course level: I.	, II.				
Prerequisities:					
Conditions for	course complet	ion:			
Learning outco To provide theo students with ba	mes: pretical backgrou asic knowledge o	nd for studying c of the theory of co	omputer scienc	e in general, by fa	amiliarising
Brief outline of Turing machine Kleene's norma machine, partia the halting prob	<b>the course:</b> e as a formalisa l form theorem. l recursive and c lem of a Turing	tion of the notion The equivalences alculable by a constant machine and a constant	on of an algor of the notion o mputer program	ithm. Partial recu f a function calcu n. Algorithmical u m.	ursive functions. lable by a Turing undecidability of
<b>Recommended</b> MACHTEY, M Holland, Amste BRIDGES, D. S	<b>literature:</b> . and YOUNG, I erdam 1978. S.: Computabilit <u>y</u>	P.: An Introductio y, A Mathematica	n to the Genera Il Sketch book,	al Theory of Algo SpringerVerlag	rithms, North 1994
Course languag	ge:				
Course assessm Total number o	ent f assessed studer	nts: 250			
A	В	С	D	E	FX
43.6	12.0	14.0	6.4	6.0	18.0
Provides: doc.	RNDr. Stanislav	Krajči, PhD.		·	· •
Date of last mo	dification: 25.02	2.2018			-
Approved: Gua	ranteeprof. RNE	Pr. Katarína Cech	lárová, DrSc.		
L					

University: P. J. Šafárik University in Košice									
Faculty: Fa	culty of Scie	ence							
<b>Course ID:</b> TVa/11	ÚTVŠ/ C	ourse name:	Sports Acti	vities I.					
Course type Course typ Recommen Per week: Course me	Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present								
Number of credits: 2									
Recommen	ded semeste	er/trimester	of the cours	<b>e:</b> 1.					
Course leve	e <b>l:</b> I., I.II., II								
Prerequisit	ies:								
Conditions Conditions Min. 80% c	for course of for course of active part	completion: ompletion: ticipation in c	elasses.						
Learning ou Increasing p relationship <b>Brief outlin</b> Brief outlin	Learning outcomes: Increasing physical condition and performance within individual sports. Strengthening the relationship of students to the selected sports activity and its continual improvement. Brief outline of the course: Brief outline of the course:								
Within the University floorball, ye tennis, spor In the first and particul physical co Last but not means of a In addition	Within the optional subject, the Institute of Physical Education and Sports of Pavol Jozef Šafárik University provides for students the following sports activities: aerobics, basketball, badminton, floorball, yoga, pilates, swimming, body-building, indoor football, self-defence and karate, table tennis, sports for unfit persons, streetball, tennis, and volleyball. In the first two semesters of the first level of education students will master basic characteristics and particularities of individual sports, motor skills, game activities, they will improve level of their physical condition, coordination abilities, physical performance, and motor performance fitness. Last but not least, the important role of sports activities is to eliminate swimming illiteracy and by means of a special program of medical physical education to influence and mitigate unfitness. In addition to these sports, the Institute offers for those who are interested winter and summer								
the premise	s of the facul	ty or Univers	sity or compe	etitions with r	national or inf	ernational pa	articipation.		
Recommen	ded literatu	re:							
Course lang	guage:								
Course asse Total numb	essment er of assesse	ed students <sup>.</sup> 1	1672						
abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs		
88.42	0.01	0.0	0.0	0.0	0.03	7.59	3.96		

**Provides:** Mgr. Peter Bakalár, PhD., Mgr. Dana Dračková, PhD., Mgr. Agata Horbacz, PhD., Mgr. Dávid Kaško, Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Marcel Čurgali, Ing. Iveta Cimboláková, PhD.

Date of last modification: 18.08.2017

	P. J. Šafárik	University in	n Košice						
Faculty: Fa	culty of Scie	ence							
<b>Course ID:</b> TVb/11	ÚTVŠ/ C	ourse name:	Sports Activ	vities II.					
Course type Course type Recomment Per week: Course met	Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present								
Number of	credits: 2								
Recommen	ded semeste	er/trimester	of the cours	<b>e:</b> 2.					
Course leve	el: I., I.II., II								
Prerequisit	ies:								
<b>Conditions</b> Conditions Final assess	for course of for course constant and ac	completion: completion: tive participa	ation in class	es - min. 75%	/0				
Learning of Learning of Increasing J relationship	utcomes: utcomes: physical con o of students	dition and pe to the selecte	rformance w ed sports acti	vithin individ vity and its c	ual sports. S continual imp	trengthening provement.	; the		
Brief outlin Brief outlin Within the University floorball, y tennis, spor	te of the course optional sub provides for oga, pilates, ts for unfit r	rse: ject, the Institution students the swimming, 1	itute of Phys following s body-buildin	ical Educatio ports activiti g, indoor foo	on and Sport es: aerobics, otball, self-d	s of Pavol Jo , basketball, efence and k	ozef Šafárik badminton,		
In the first and particul physical co Last but no means of a In addition physical edu the premise	two semester larities of incondition, coo t least, the in special prog to these spe ucation train s of the facul	ersons, street rs of the firs lividual sport rdination abi nportant role ram of medic orts, the Inst ings with an a ty or Univers	tball, tennis, t level of edu s, motor skill lities, physic of sports act cal physical e itute offers f attractive pro-	and volleyba ucation stude ls, game activ cal performan ivities is to e education to i for those who gram and org titions with n	all. ents will mass vities, they w ince, and more iliminate swi influence and o are interest anises various ational or interest	ster basic cha ill improve le tor performa mming illite d mitigate un ted winter a us competitic ternational pa	carate, table aracteristics evel of their ince fitness. racy and by affitness. and summer ons, either at articipation.		
In the first and particul physical co Last but no means of a In addition physical edu the premise <b>Recommen</b>	two semester larities of incondition, coo t least, the in special prog to these spe ucation train s of the facul ded literatu	rersons, street rs of the firs lividual sport rdination abi nportant role ram of medic orts, the Inst ings with an a ty or Univers re:	tball, tennis, t level of edu s, motor skill lities, physic of sports act cal physical e itute offers f attractive pro-	and volleyba ucation stude ls, game activ cal performan ivities is to e education to i for those who gram and org titions with n	all. ents will mass vities, they we have, and more iliminate swi influence and o are interess anises various ational or interest	ster basic cha ill improve le tor performa mming illite d mitigate un ted winter a us competitional pa	carate, table aracteristics evel of their ince fitness. racy and by affitness. and summer ons, either at articipation.		
In the first and particul physical co Last but no means of a In addition physical edu the premise <b>Recommen</b> <b>Course lang</b>	two semester larities of incondition, coo t least, the in special prog to these spe ucation train s of the facul ded literatu guage:	rersons, street rs of the firs lividual sport rdination abi nportant role ram of medic orts, the Inst ings with an a ty or Univers re:	tball, tennis, t level of edu s, motor skill lities, physic of sports act cal physical e itute offers f attractive pro-	and volleyba ucation stude ls, game activ cal performan ivities is to e education to i for those who gram and org titions with n	all. ents will mas vities, they w ince, and more liminate swi influence and o are interest anises various ational or int	ster basic cha ill improve le tor performa mming illite d mitigate un ted winter a us competitional pa	carate, table aracteristics evel of their ince fitness. racy and by ifitness. and summer ons, either at articipation.		
In the first and particul physical co Last but no means of a In addition physical edu the premise <b>Recommen</b> <b>Course lang</b> <b>Course asse</b> Total numb	two semester larities of incondition, coo t least, the in special prog to these spe ucation train s of the facul ded literatu guage: essment er of assesse	ersons, street rs of the firs lividual sport rdination abi nportant role ram of medic orts, the Inst ings with an a ty or Univers re:	tball, tennis, t level of edu s, motor skill lities, physic of sports act cal physical e itute offers f attractive pro- ity or compe	and volleyba ucation stude ls, game activ cal performan ivities is to e education to i for those who gram and org titions with n	all. ents will mas vities, they w ince, and mor liminate swi influence and o are interes anises variou lational or int	ster basic cha ill improve la tor performa mming illite d mitigate un ted winter a us competitic ternational pa	carate, table aracteristics evel of their ince fitness. racy and by affitness. and summer ons, either at articipation.		
In the first and particul physical co Last but no means of a In addition physical edu the premise <b>Recommen</b> <b>Course lang</b> <b>Course asso</b> Total numb abs	two semester larities of inc ndition, coo t least, the in special prog to these spe ucation train s of the facul ded literatu guage: essment er of assesse abs-A	ersons, street rs of the firs lividual sport rdination abi nportant role ram of medic orts, the Inst ings with an a ty or Univers re: ed students: 1 abs-B	tball, tennis, t level of edu s, motor skill lities, physic of sports act cal physical e itute offers f attractive pro- ity or compe 0971 abs-C	and volleyba ucation stude ls, game activ cal performan ivities is to e education to i for those who gram and org titions with n	all. ents will mas vities, they w ince, and mor liminate swi influence and o are interes anises variou ational or int abs-E	ster basic cha ill improve la tor performa mming illite d mitigate un ted winter a us competition ternational pa	aracteristics evel of their ince fitness. racy and by ifitness. and summer ons, either at articipation.		

**Provides:** Mgr. Peter Bakalár, PhD., Mgr. Dana Dračková, PhD., Mgr. Agata Horbacz, PhD., Mgr. Dávid Kaško, Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Marcel Čurgali, Ing. Iveta Cimboláková, PhD.

Date of last modification: 18.08.2017

University: P. J. Šafárik University in Košice								
Faculty: Faculty of Science								
<b>Course ID:</b> TVc/11	ÚTVŠ/	VŠ/ Course name: Sports Activities III.						
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present								
Number of	credits: 2		6.4					
Recommen	ded seme	ster/trimester	of the cours	<b>e:</b> 3.				
Course leve	e <b>l:</b> I., I.II.,	II.						
Prerequisit	ies:							
Conditions	for cours	e completion:						
Learning o	utcomes:							
Brief outlin	e of the c	ourse:						
Recommen	ded litera	ture:						
Course lang	guage:							
Course asso Total numb	essment er of asses	sed students: 6	910					
abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs	
89.84	0.04	0.0	0.0	0.0	0.03	4.23	5.86	
<b>Provides:</b> Mgr. Marcel Čurgali, Mgr. Peter Bakalár, PhD., Mgr. Dana Dračková, PhD., Mgr. Agata Horbacz, PhD., Mgr. Dávid Kaško, Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Ing. Iveta Cimboláková, PhD.								
Date of last	modifica	tion: 18.08.201	17					
Approved:	Guarantee	prof. RNDr. K	atarína Cech	lárová, DrSc				

University: P. J. Šafárik University in Košice								
Faculty: Fa	culty of So	cience						
<b>Course ID:</b> TVd/11	ÚTVŠ/	Course name: Sports Activities IV.						
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present								
Number of	Number of credits: 2							
Recommen	ded semes	ster/trimester	of the cours	<b>e:</b> 4.				
Course leve	e <b>l:</b> I., I.II.,	II.						
Prerequisities:								
Conditions for course completion:								
Learning outcomes:								
Brief outline of the course:								
Recommended literature:								
Course language:								
Course assessment Total number of assessed students: 5045								
abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs	
85.09	0.3	0.04	0.0	0.0	0.0	6.82	7.75	
<b>Provides:</b> Mgr. Marcel Čurgali, Mgr. Peter Bakalár, PhD., Mgr. Dana Dračková, PhD., Mgr. Agata Horbacz, PhD., Mgr. Dávid Kaško, Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Ing. Iveta Cimboláková, PhD.								
Date of last	Date of last modification: 18.08.2017							
Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.								

University: P. J.	University: P. J. Šafárik University in Košice						
Faculty: Faculty	Faculty: Faculty of Science						
<b>Course ID:</b> ÚIN TYS1/15	VF/ Course name: Typographical systems						
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present							
Number of cred	its: 2						
Recommended :	semester/trimes	ster of the cours	e: 6.				
Course level: I.							
Prerequisities:							
Conditions for a	course completi	on:					
<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.							
Recommended literature:							
Course language:							
Course assessment Total number of assessed students: 242							
А	В	С	D	E	FX		
47.11	18.6	19.83	6.61	7.02	0.83		
Provides: doc. RNDr. Stanislav Krajči, PhD.							
Date of last modification: 25.02.2018							
Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.							

Faculty: Faculty	of Science								
	of belefice		Faculty: Faculty of Science						
Course ID: ÚMV UAD/10	ÚMV/ <b>Course name:</b> Introduction to data analysis								
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 1 / 1 Per study period: 14 / 14 Course method: present									
Number of credits: 2									
Recommended s	emester/trimes	ter of the cours	e: 3.						
Course level: I.									
Prerequisities:									
<b>Conditions for c</b> Test and individu Oral presentation	ourse completion al project work a of the individu	on: al project work.							
Learning outcomes: To know the basic purpose of statistical data analysis, its methods and statistical thinking and understand its importance for science and practical life. To understand elementary statistical concepts. To gain experience in handling real data using spreadsheet Excel and statistical software R.									
<ul> <li>Brief outline of the course:</li> <li>1. Introduction (the basic philosophy and aim of statistical data analysis, descriptive and inductive statistics)</li> <li>2. Collecting Data (types of data, random sample, randomized experiment)</li> <li>3. Handling Data (visualization, summarizing – measures of center, measures of variability, skewness and kurtosis, relationships in data – introduction to regression and correlation)</li> <li>4. Statistical inference (elementary view into estimation and testing hypothesis)</li> </ul>									
<ul> <li>Recommended literature:</li> <li>1. Anděl, J.: Statistické metody, Matfyzpress, Praha, 1998 (in Czech)</li> <li>2. Rossman, A.J. et al.: Workshop Statistics: Discovery with Data and Fathom, 3rd ed. Wiley, 2009</li> <li>3. Utts, J.M.: Seeing Through Statistics, 4th ed., Thomson Brooks/Cole, Belmont, 2014</li> <li>4. Utts, J.M., Heckard R.F.: Mind on Statistics, 5th ed. Thomson Brooks/Cole, Belmont, 2014</li> <li>5. Zvára, K., Štěpán, J.: Pravděpodobnost a matematická statistika, Matfyzpress, Praha, 2001 (in Czech)</li> </ul>									
Course language: Slovak									
Course assessment Total number of assessed students: 272									
A	B	C	D	Е	FX				
29.41	27.21	30.51	11.76	0.74	0.37				

Provides: doc. RNDr. Ivan Žežula, CSc., RNDr. Martina Hančová, PhD.

Date of last modification: 27.02.2018

University: P. J. Šafárik University in Košice							
Faculty: Faculty of Science							
Course ID: ÚM UDM/10	[V/ Co	ourse na	me: Introduction	n to mathematics			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 1 / 2 Per study period: 14 / 28 Course method: present							
Number of crea	lits: 3						
Recommended	semeste	r/trimes	ster of the cours	<b>e:</b> 1.	_		
Course level: I.							
Prerequisities:							
<b>Conditions for</b> Two tests during	<b>course c</b> g the sen	ompleti nester.	on:				
Learning outcomes: Repetition of problematic sections of the secondary mathematics by interesting tasks.							
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. Exponencial and logarithmic function; equations and inequalities. Goniometric functions; equations and inequalities. Complex numbers.							
<ul> <li>Recommended literature:</li> <li>1. V. Medek - L. Mišík - T. Šalát: REPETITÓRIUM STREDOŠKOLSKEJ MATEMATIKY, Alfa Bratislava, 1976</li> <li>2. S. Richtárová - D. Kyselová: MATEMATIKA (pomôcka pre maturantov a uchádzačov o štúdium na vysokých školách), Enigma Nitra, 1998</li> <li>3. O. Hudec - Z. Kimáková - E. Švidroňová: PRÍKLADY Z MATEMATIKY (pre uchádzačov o štúdium na TU v Košiciach), EF TU Košice, 1999</li> <li>4. F. Peller - V. Šáner - J. Eliáš - Ľ. Pinda: MATEMATIKA – Podklady na prijímacie testy pre uchádzačov o štúdium, Ekonóm Bratislava, 2000/2001</li> <li>5. F. Vesajda - F. Talafous: ZBIERKA ÚLOH Z MATEMATIKY pre stredné všeobecnovzdelávacie školy a gymnáziá, SPN Bratislava, 1973</li> <li>6. J. Lukášová - O. Odvárko - B. Riečan - J. Šedivý - J. Vyšín: ÚLOHY Z MATEMATIKY pre 4. ročník gymnázia, SPN Bratislava, 1976</li> </ul>							
Course language: Slovak							
Course assessment Total number of assessed students: 460							
А	E	3	С	D	Е	FX	
22.61	16.	09	17.17	16.09	16.3	11.74	

Provides: doc. RNDr. Matúš Harminc, CSc., RNDr. Tadeáš Gavala

**Date of last modification:** 27.02.2018
University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: Dek. PF Course name: Introduction to Study of Sciences JPJŠ/USPV/13			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: Per study period: 12s / 3d Course method: present			
Number of credits: 2			
Recommended semester/trimester of the course: 1.			
Course level: I.			
Prerequisities:	Prerequisities:		
Conditions for course completion:			
Learning outcomes:			
Brief outline of the course:			
Recommended literature:			
Course language:			
Course assessment Total number of assessed students: 1356			
abs n			
88.86 11.14			
Provides:			
Date of last modification: 19.02.2018			
Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.			

University: P. J. Šafárik University in Košice				
Faculty: Faculty of Science				
<b>Course ID:</b> ÚMV/ ZBR/14	Course name: Bridge Fundamentals			
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present				
Number of credits: 2				
Recommended seme	ster/trimester of the	course: 3.		
Course level: I.	Course level: I.			
Prerequisities:				
Conditions for course completion: 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.				
<ul> <li>Bridge rules.</li> <li>Principles of the bidding system Standard American.</li> <li>Basic techniques of declarer's play.</li> <li>Basic techniques of the defence.</li> <li>Lead conventions, signals.</li> <li>Common bidding conventions.</li> <li>Selected advanced techniques of the card play.</li> <li>Partnership cooperation in the contract bridge.</li> <li>Bridge ethics</li> </ul>				
Recommended literature: T. Menyhért: Kurz bridžu 2013, http://new.bridgekosice.sk/kurz-bridzu-2013/ R. Pavlicek: Learn To Play Bridge!, http://www.rpbridge.net/1a00.htm ACBL SAYC System Booklet, http://ebookbrowsee.net/acbl-sayc-pdf-d201415187				
Course language: Slovak or English				
Notes: Minimum number of participants is 4.				
Course assessment Total number of assessed students: 17				
	abs n			
	94.12 5.88			
Provides: doc. RNDr. Miroslav Ploščica, CSc., prof. RNDr. Mirko Horňák, CSc.				

Date of last modification: 27.02.2018

Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚMV/ ZIP/10Course name: Life insurance			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 1 Per study period: 28 / 14 Course method: present			
Number of credits: 4			
Recommended semester/trimester of the course: 6.			
Course level: I.			
Prerequisities:			
<b>Conditions for course completion:</b> Given at the basis of partial examination, written part, and oral part of the exam.			
Learning outcomes: Mastering basics of insurance mathematics for life insurance.			
Brief outline of the course:         • Interest calculus in insurance (compound and continuous interests, annuities and perpetuities)         • Mortality modeling         • Lifetime, force of mortality, distribution of future lifetime         • Ourtate and fractional future lifetime         • Multiple decrement model         • Life tables         • Estimation of probabilities of death         • Elementary types of life insurance         • Equivalence principle         • Life insurance with fixed and varying benefits         • Calculation of promiums         • Net premiums         • Expense-loaded premiums         • Health risks in insurance         • Premium reserves         • Reinsurance in life insurance         • Expense-loaded premium reserves         • Reinsurance in life insurance         • Recommended literature:         • Gerber: Life insurance mathematics, Springer, 1997         • Bowers et al.: Actuarial mathematics, The Society of Actuaries, 1986			

Course assessment Total number of assessed students: 138					
А	В	С	D	Е	FX
15.94	19.57	25.36	13.04	16.67	9.42
Provides: doc. RNDr. Ivan Žežula, CSc., RNDr. Daniel Klein, PhD.					
Date of last modification: 27.02.2018					
Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.					

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
<b>Course ID:</b> ÚM ZUC/10	IV/ Cour	se name: Principles	of book-keeping		
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present					
Number of crea	dits: 4				
Recommended	semester/tr	imester of the cours	se: 5.		
Course level: I.					
Prerequisities:	ÚMV/MAN	b/19			
<b>Conditions for course completion:</b> Three tests: single-entry accountig (complex example), double-entry accounting (complex example), conceptual apparatus of accounting. The final evaluation is given at the basis of partial tests.					
<b>Learning outco</b> To learn basics	omes: of economic	conceptual and proc	cedural apparatus	of accounting.	
<b>Brief outline of the course:</b> The history and legal regulations of accounting. Structure of accounting in a bussines company, bank and insurance company; accounting information system. Various kinds of business, trade licence and trade law. Company subjects, banks and insurance companies - the financial instruments. Single-entry accountig system, statements. Assets and its sources. Assets and liability pricing. Balance principle. Assets and liabilities list. Balance sheet, structure of assets and liabilities. Double-entry accounting records. Account, accounting on accounts of balance sheet and income statement. Synthetic and analytical records. Account classification of business companies, banks and insurance companies, the principles of its construction. Balance sheet, income statement. Financial statement (simple and consolidated).					
Recommended literature: Soukupová B., Šlosárová A., Baštincová A.: Účtovníctvo. Bratislava: Iura Edition, 2001 Máziková a kol.: Účtovníctvo (učebné texty). Bratislava: Iura Edition, 2009 Beňová E. a kol.: Financie a mena. Bratislava: Iura Edition, 2005 The Law of NR SR no. 43/2002 Z. z. on accounting, the law on income tax no. 595/2003 Z. z.					
Course language: Slovak					
Course assessment Total number of assessed students: 102					
Α	В	C	D	Е	FX
16.67	16.67	30.39	20.59	14.71	0.98
Provides: RNDr. Daniel Klein, PhD.					

Date of last modification: 27.02.2018

Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
<b>Course ID:</b> ÚTVŠ/ ÚTVŠ/CM/13	Course name: Seaside	Aerobic Exercise			
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: Per study period: 36s Course method: present					
Number of credits: 2	Number of credits: 2				
Recommended seme	ster/trimester of the cou	irse:			
Course level: I., II.					
Prerequisities:					
Conditions for course completion: Conditions for course completion: Attendance					
Learning outcomes: Learning outcomes: Students will be provided an overview of possibilities how to spend leisure time in seaside conditions actively and their skills in work and communication with clients will be improved. Students will acquire practical experience in organising the cultural and art-oriented events, with the aim to improve the stay and to create positive experiences for visitors.					
<ul> <li>Brief outline of the course:</li> <li>Brief outline of the course:</li> <li>1. Basics of seaside aerobics</li> <li>2. Morning exercises</li> <li>3. Pilates and its application in seaside conditions</li> <li>4. Exercises for the spine</li> <li>5. Yoga basics</li> <li>6. Sport as a part of leisure time</li> <li>7. Application of projects of productive spending of leisure time for different age and social groups (children, young people, elderly)</li> <li>8. Application of seaside cultural and art-oriented activities in leisure time</li> </ul>					
Recommended literature:					
Course language:					
<b>Course assessment</b> Total number of assessed students: 33					
	abs n				
	12.12 87.88				
Provides: Mgr. Alena Buková, PhD., Mgr. Agata Horbacz, PhD.					
Date of last modification: 18.08.2017					

Approved: Guaranteeprof. RNDr. Katarína Cechlárová, DrSc.