University: P. J. Šafá	rik University in Košice			
Faculty: Faculty of S	cience			
Course ID: ÚMV/ dCMG/12	Course ID: ÚMV/ Course name: Citation in a monograph CMG/12			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present				
Number of credits: 2	20			
Recommended seme	ster/trimester of the cours	e:		
Course level: III.				
Prerequisities:				
Conditions for cours	e completion:			
Learning outcomes:				
Brief outline of the c	ourse:			
Recommended litera	iture:			
Course language:				
Notes:				
Course assessment Total number of assessed students: 0				
abs n				
0.0 0.0				
Provides:				
Date of last modification:				
Approved: prof. RNDr. Mirko Horňák, CSc.				

University: P. J. Šafá	rik University in Košice			
Faculty: Faculty of S	Faculty: Faculty of Science			
Course ID: ÚMV/ dCZC/12	Course ID: ÚMV/ Course name: Citation in an international scientific journal			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present				
Number of credits: 1	0			
Recommended seme	ster/trimester of the cours	e:		
Course level: III.				
Prerequisities:				
Conditions for cours	e completion:			
Learning outcomes:				
Brief outline of the c	ourse:			
Recommended litera	iture:			
Course language:				
Notes:				
<b>Course assessment</b> Total number of asses	ssed students: 0			
abs n				
0.0 0.0				
Provides:				
Date of last modification:				
Approved: prof. RNI	Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of S	Faculty: Faculty of Science				
Course ID: ÚMV/ dCDC/12	Course ID: ÚMV/ Course name: Citation in a Slovak scientific journal CDC/12				
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present				
Number of credits: 5					
Recommended seme	ster/trimester of the cours	e:			
Course level: III.					
Prerequisities:					
Conditions for cours	e completion:				
Learning outcomes:					
Brief outline of the c	ourse:				
Recommended litera	iture:				
Course language:					
Notes:					
Course assessment Total number of assessed students: 0					
abs n					
0.0 0.0					
Provides:					
Date of last modification:					
Approved: prof. RNI	Approved: prof. RNDr. Mirko Horňák, CSc.				

University: P. J. Šafá	rik University in Košice			
Faculty: Faculty of S	cience			
Course ID: ÚMV/ dKOA/10	Course ID: ÚMV/ Course name: Combinatorial algorithms KOA/10			
Course type, scope a Course type: Lectur Recommended cour Per week: 3 Per stu Course method: pre	nd the method: re rse-load (hours): dy period: 42 esent			
Number of credits: 5				
Recommended seme	ster/trimester of the cours	e: 2., 4.		
Course level: III.				
Prerequisities:				
<b>Conditions for cours</b> Exam	e completion:			
Learning outcomes:				
Brief outline of the c	ourse:			
Recommended litera	iture:			
<b>Course language:</b> Slovak and English				
Notes:				
Course assessment Total number of asse	ssed students: 13			
N P				
0.0 100.0				
Provides: prof. RND	r. Stanislav Jendrol', DrSc.			
Date of last modifica	tion: 03.05.2015			
Approved: prof. RNI	Dr. Mirko Horňák, CSc.			

University: P. J. Šafá	rik University in Košice					
Faculty: Faculty of S	cience					
Course ID: ÚMV/ dKOM/10	Course ID: ÚMV/ Course name: Combinatorics KOM/10					
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 3 Per study period: 42 Course method: present						
Number of credits: 5						
Recommended seme	ster/trimester of the cours	e: 3.				
Course level: III.						
Prerequisities:						
<b>Conditions for cours</b> Oral exam	e completion:					
Learning outcomes:						
<b>Brief outline of the course:</b> Finite combinatorics. Generating functions. Incidence structures. Distributive latices. Basis of infinite combinatorics. Almost disjoint set systems. Independence set systems. Infinite trees, their properties and a question of their existence. Some cardinal characteristics of the set of real numbers.						
<ul> <li>Recommended literature:</li> <li>1. M. Aigner: Combinatorial Theory, Springer-Verlag, Berlin, 1997</li> <li>2. B. Balcar a P. Štěpánek, Teorie množin, Academia, Praha 2000</li> <li>3. B. Bollobás, Combinatorics, Cambridge University Press, Cambridge 1986</li> <li>4. T. Jech, Set Theory, Springr-Verlag, Berlin 2002</li> <li>5. Journal literatura</li> </ul>						
Course language: Slovak and English						
Notes:	Notes:					
Course assessment Total number of assessed students: 3						
N P						
	0.0 100.0					
Provides: prof. RNDr. Stanislav Jendrol', DrSc.						
Date of last modifica	tion: 03.05.2015					
Approved: prof. RNI	Dr. Mirko Horňák, CSc.					

University P I Šaf	ärik University in Košice
E E E E	
Faculty: Faculty of	Science
Course ID: UINF/ VYMD/15	Course name: Computational complexity and models
Course type, scope Course type: Lectu Recommended cou Per week: 2 Per st Course method: pr	and the method: are arse-load (hours): udy period: 28 resent
Number of credits:	9
Recommended sem	ester/trimester of the course: 3.
Course level: III.	
Prerequisities:	
<b>Conditions for cour</b> Written test combine	<b>ese completion:</b>
Learning outcomes Providing en extend of algorithms, and fu about reducibility an	ed backgroung in the area of efficient computations, computational complexity indamental time and space complexity classes, hardest complete problems, and nong problems.
Brief outline of the Basic computational complexity; determ NL, P, NP, PSPAC complexity classes; computations and hi	<b>course:</b> I models; relations among different models with respect to their computational inistic and nondeterministic computations; basic complexity classes - L, CE, NPSPACE; reducibilities of problems; complete languages in basic hierarchy and translation theorems for time and space; relativization; alternating terarchies.
Recommended liter J.E. Hopcroft, R.Mc computation, Addise M. Sipser: Introduct S. Arora, B. Barak: 2009	ature: otwani, J.D. Ullman: Introduction to automata theory, languages, and on-Wesley, 2007. ion to the Theory of Computation, Thomson, 2nd edition, 2006. Computational Complexity: A Modern Approach, Cambridge Univ. Pess,

C. Calude and J. Hromkovič: Complexity: A Language-Theoretic Point of View, in G. Rozenberg and A. Salomaa, Handbook of Formal Languages II, Springer, 1997.

G.Brassard, P.Bradley: Fundamentals of algorithmics, Prentice Hall, 1996.

Ch. H. Papadimitriou: Computational Complexity, Addison-Wesley, 1994.

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

#### **Course language:**

Notes:

Course assessment Total number of assessed students: 21				
N P				
0.0	100.0			
Provides: prof. RNDr. Viliam Geffert, DrSc.				
Date of last modification: 03.05.2015				
Approved: prof. RNDr. Mirko Horňák, CSc.				

University: P. J. Šafá	rik University in Košice			
Faculty: Faculty of S	Faculty: Faculty of Science			
<b>Course ID:</b> ÚMV/ dPOV/12	Course ID: ÚMV/ POV/12Course name: Conference organising committee membership			
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of credits: 2				
Recommended seme	ster/trimester of the cours	e:		
Course level: III.				
Prerequisities:				
Conditions for cours	e completion:			
Learning outcomes:				
Brief outline of the c	ourse:			
Recommended litera	iture:			
Course language:				
Notes:				
Course assessment Total number of assessed students: 3				
abs n				
100.0 0.0				
Provides:				
Date of last modification:				
Approved: prof. RNDr. Mirko Horňák, CSc.				

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of S	Faculty: Faculty of Science				
<b>Course ID:</b> ÚMV/ dSVP/14	Course ID: ÚMV/ SVP/14Course name: Co-researcher of an APVV or VEGA project				
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present					
Number of credits: 2					
Recommended seme	ster/trimester of the cours	e:			
Course level: III.					
Prerequisities:					
Conditions for cours	e completion:				
Learning outcomes:					
Brief outline of the c	ourse:				
Recommended litera	iture:				
Course language:	Course language:				
Notes:					
<b>Course assessment</b> Total number of asses	ssed students: 18				
abs n					
100.0 0.0					
Provides:					
Date of last modification:					
Approved: prof. RNI	Approved: prof. RNDr. Mirko Horňák, CSc.				

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of S	Faculty: Faculty of Science				
<b>Course ID:</b> ÚMV/ dSVG/12	Course ID: ÚMV/ SVG/12Course name: Co-researcher of an internal grant				
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present				
Number of credits: 1	0				
Recommended seme	ster/trimester of the cours	e:			
Course level: III.					
Prerequisities:					
Conditions for cours	e completion:				
Learning outcomes:					
Brief outline of the c	ourse:				
Recommended litera	iture:				
Course language:					
Notes:					
Course assessment Total number of assessed students: 47					
abs n					
100.0 0.0					
Provides:					
Date of last modifica	Date of last modification:				
Approved: prof. RNI	Approved: prof. RNDr. Mirko Horňák, CSc.				

University: P. J. Šafá	University: P. J. Šafárik University in Košice				
Faculty: Faculty of S	Faculty: Faculty of Science				
<b>Course ID:</b> ÚMV/ dSMP/14	Course ID: ÚMV/ Course name: Co-researcher of an international project				
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present				
Number of credits: 3					
Recommended seme	ster/trimester of the cours	2:			
Course level: III.					
Prerequisities:					
Conditions for cours	e completion:				
Learning outcomes:					
Brief outline of the c	ourse:				
Recommended litera	iture:				
Course language:					
Notes:					
Course assessment Total number of assessed students: 0					
abs n					
0.0 0.0					
Provides:					
Date of last modification:					
Approved: prof. RNI	Approved: prof. RNDr. Mirko Horňák, CSc.				

University: P. J	. Šafárik Univers	ity in Košice					
Faculty: Faculty	y of Science						
Course ID: CJF AJD1/07	se ID: CJP/ Course name: English Language for PhD Students 1 /07						
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	dits: 2						
Recommended	semester/trimes	ster of the cours	<b>e:</b> 1.				
Course level: II	I						
Prerequisities:							
Conditions for	course completi	on:					
Learning outco	omes:						
Brief outline of	the course:						
Recommended	literature:						
Course languag	ge:						
Notes:				-			
Course assessment Total number of assessed students: 425							
N	N Ne P Pr abs neabs						
0.0	0.0 0.0 67.53 0.0 32.47 0.0						
Provides: PhDr. Helena Petruňová, CSc., Mgr. Zuzana Kolaříková, PhD.							
Date of last modification: 03.05.2015							
Approved: prof	f. RNDr. Mirko H	Iorňák, CSc.					

University: P. J.	Šafárik Univers	ity in Košice			
Faculty: Faculty	y of Science				
Course ID: CJP AJD2/07	Course name: English Language for PhD Students 2				
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	lits: 3				
Recommended	semester/trimes	ster of the cours	e: 2.		
<b>Course level:</b> II	I				
Prerequisities:					
Conditions for	course completi	on:			
Learning outcomes:					
Brief outline of	the course:				
Recommended	Recommended literature:				
Course languag	ge:				
Notes:	Notes:				
Course assessment Total number of assessed students: 421					
N	Ne	Р	Pr	abs	neabs
0.0	0.0 0.0 89.79 1.9 8.31 0.0				
Provides: PhDr. Helena Petruňová, CSc., Mgr. Zuzana Kolaříková, PhD., Mgr. Barbara Mitríková					
Date of last modification: 03.05.2015					
Approved: prof. RNDr. Mirko Horňák, CSc.					

University: P. J. Šafá	rik University in Košice			
Faculty: Faculty of S	cience			
<b>Course ID:</b> ÚMV/ dEKO/10	<b>Durse ID:</b> ÚMV/ <b>Course name:</b> Enumeration of combinatorial objects EKO/10			
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 4 Per study period: 56 Course method: present				
Number of credits: 7				
Recommended seme	ster/trimester of the cours	e: 2., 4.		
Course level: III.				
Prerequisities:				
<b>Conditions for cours</b> A student is evaluated	e completion: d according to an oral exami	nation.		
Learning outcomes: Student gets acquaint it when determining t	ed with Pólya's enumeratior he number of some mathem	a theory and on special examples sees how to use atical objects.		
<b>Brief outline of the course:</b> Cycle index of a permutation group. Burnside's Lemma. Pólya's Enumeration Theorem. Enumeration of injective functions. Enumeration of trees. Enumeration of graphs of given order and size. Enumeration of oriented graphs. Generalisations of Pólya's Enumeration Theorem.				
<b>Recommended literature:</b> F. Harary, E. M. Palmer: Graphical Enumeration, Academic Press, 1973				
Course language: Slovak and English				
Notes:				
Course assessment Total number of assessed students: 2				
	N P			
	0.0 100.0			
Provides: prof. RNDr. Mirko Horňák, CSc.				
Date of last modification: 03.05.2015				
Approved: prof. RNI	Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of Science					
Course ID: ÚMV/ dTGF/10	Course name: Graph theor	ſy			
Course type, scope a Course type: Lectur Recommended cou Per week: 3 Per stu Course method: pre	Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 3 Per study period: 42 Course method: present				
Number of credits: 5	5				
Recommended seme	ster/trimester of the cours	e: 1			
Course level: III.					
Prerequisities:					
<b>Conditions for cours</b> Oral examination	e completion:				
Learning outcomes: Knowledge some of scietific work.	basic and also up-to-date kn	owledge about graph theory. Ability of a creative			
<b>Brief outline of the course:</b> Planar graphs. Colourings of graphs and their generalizations. Structural properties of plane graphs. Introduction to the theory of light graphs. Colourings of plane graphs. Cyclic colourings. Parity colourings. Nonrepetitive colourings. Rainbow colourings. Ramsey theory for graphs. Applications of graph theory					
<ul> <li>Recommended literature:</li> <li>1. J. A. Bondy and U.S.R. Murty, Graph Theory, Springer-Verlag, 2008</li> <li>2. J.Bang-Jensen and G. Gutin: Digraphs: Theory, Algorithms and Applications, Springer-Verlag London, 2001</li> <li>3. R. Diestel: Graph Theory, Springer-Verlag, New York, 1997</li> <li>4. Časopisecká literatúra</li> </ul>					
Course language: Slovak and English					
Notes:					
Course assessment Total number of assessed students: 40					
	Ν	Р			
	0.0 100.0				
<b>Provides:</b> doc. RNDr. Roman Soták, PhD., prof. RNDr. Mirko Horňák, CSc., prof. RNDr. Stanislav Jendrol', DrSc., doc. RNDr. Jaroslav Ivančo, CSc., doc. RNDr. Tomáš Madaras, PhD.					
Date of last modification: 03.05.2015					

Approved: prof. RNDr. Mirko Horňák, CSc.

University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science					
<b>Course ID:</b> ÚMV/ dTGR/10	Course name: Group theor	T <b>y</b>			
Course type, scope a Course type: Lectur Recommended cour Per week: 4 Per stu Course method: pre	Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 4 Per study period: 56 Course method: present				
Number of credits: 7	1				
Recommended seme	ster/trimester of the cours	e: 3.			
Course level: III.					
Prerequisities:					
<b>Conditions for cours</b> written and oral exam	e completion:				
Learning outcomes: The students learn ba parts of mathematics.	<b>Learning outcomes:</b> The students learn basic concepts and methods of group theory and their applications in various parts of mathematics.				
<b>Brief outline of the course:</b> Groups of symmetries, abstract groups. Subgroups, orders of elements, cyclic groups. Normal subgroups, factorization. Classification of finitely generated Abelian groups. Groups of permutations, cyclic index, Burnside's lemma, Pólya's theorem. Sylow's subgroups, p-groups. Groups in linear algebra					
Recommended literature: S. MacLane, G. Birkhoff: Algebra, Alfa Bratislava, 1973 L. Beran: Grupy a svazy, SNTL Praha, 1974 D.A.R. Wallace: Groups,rings and fields, Springer 1998 J. J. Rotman: Advanced Modern Algebra, Amer. Math. Soc., Providence 2010					
Course language: Slovak or English					
Notes:					
Course assessment Total number of assessed students: 36					
	N P				
	0.0 100.0				
Provides: doc. RNDr. Miroslav Ploščica, CSc.					
Date of last modification: 03.05.2015					
Approved: prof. RNDr. Mirko Horňák, CSc.					

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of Science			
<b>Course ID:</b> ÚMV/ dISLa/14	ourse ID: ÚMV/ Course name: Individual study of scientific literature I SLa/14		
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	nd the method: rse-load (hours): y period: ssent		
Number of credits: 1	2		
Recommended seme	ster/trimester of the cours	e: 1., 2	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:	Learning outcomes:		
Brief outline of the c	ourse:		
Recommended litera	ture:		
<b>Course language:</b> Slovak and English			
Notes:			
Course assessment Total number of assessed students: 7			
	abs n		
100.0 0.0			
Provides:			
Date of last modifica	tion: 03.05.2015		
Approved: prof. RNI	Approved: prof. RNDr. Mirko Horňák, CSc.		

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of Science			
<b>Course ID:</b> ÚMV/ dISLb/14	Ourse ID: ÚMV/       Course name: Individual study of scientific literature II         SLb/14       SLb/14		
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	nd the method: rse-load (hours): y period: esent		
Number of credits: 1	2		
Recommended seme	ster/trimester of the cours	e: 3., 4	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:	Learning outcomes:		
Brief outline of the c	ourse:		
Recommended litera	iture:		
<b>Course language:</b> Slovak and English			
Notes:			
<b>Course assessment</b> Total number of asses	ssed students: 7		
	abs n		
100.0 0.0			
Provides:			
Date of last modifica	tion: 03.05.2015		
Approved: prof. RNI	Approved: prof. RNDr. Mirko Horňák, CSc.		

University: P. J. Šafá	University: P. J. Šafárik University in Košice				
Faculty: Faculty of S	Faculty: Faculty of Science				
Course ID: ÚMV/ dTZV/10	<b>ID:</b> ÚMV/ <b>Course name:</b> Lattice Theory				
Course type, scope a Course type: Lectur Recommended cour Per week: 2 Per stu Course method: pre	Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present				
Number of credits: 5	;				
Recommended seme	ster/trimester of the cours	e: 2., 4.			
Course level: III.					
Prerequisities:					
Conditions for cours Awarded according to	e completion:				
<b>Learning outcomes:</b> The students learn ba in various parts of ma	sic concepts and methods of athematics.	Lattice theory and gain the ability to apply them			
<b>Brief outline of the course:</b> Distributive and modular lattices, Boolean algebras. Ideals, reprezentation of distibutive lattices and Boolean algebras. Completeness and completions. Algebraic properties of lattices, congruence relations. Formal concept analysis					
Recommended literature: G.Grätzer: General Lattice Theory (2nd edition), Birkhäuser, 1998 B. A. Davey, H. A. Priestley: Introduction to lattices and order, Cambridge University Press 1990 M. Kolibiar: Algebra a príbuzné disciplíny, Alfa Bratislava, 1991					
Course language: Slovak and English					
Notes:					
Course assessment Total number of assessed students: 6					
	N P				
	0.0 100.0				
Provides: doc. RNDr. Miroslav Ploščica, CSc.					
Date of last modification: 03.05.2015					
Approved: prof. RNI	Dr. Mirko Horňák, CSc.				

University: P. J. Šafá	rik University in Košice			
Faculty: Faculty of S	cience			
Course ID: ÚMV/ dTMT/10	rse ID: ÚMV/ Course name: Matroid theory T/10			
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 4 Per study period: 56 Course method: present				
Number of credits: 7	1			
Recommended seme	ster/trimester of the cours	e: 1., 3.		
Course level: III.				
Prerequisities:				
<b>Conditions for cours</b> A student is evaluated	e completion: d according to an oral exami	nation.		
Learning outcomes: A student gets acqua them in various discip	inted with special parts of 1 plines of discrete mathemati	natroid theory and with possibilities how to use cs.		
<b>Brief outline of the course:</b> Restriction, contraction, minor of a matroid. Connected matroids. Whitney's Theorem. Graph homeomorphisms versus matroid minors. Planar graphs and their duals. Representation of a matroid in a vector space. Binary matroids. Block designs versus matroids. Extremal problems in matroids. Greedy algorithm versus matroids				
Recommended literature: D. J. A. Welsh: Matroid Theory, Academic Press, 1976. J. G. Oxley, Matroid Theory, Oxford University Press, 2010.				
Course language: Slovak and English				
Notes:				
Course assessment Total number of assessed students: 10				
	Ν	Р		
	10.0 90.0			
Provides: prof. RNDr. Mirko Horňák, CSc.				
Date of last modification: 03.05.2015				
Approved: prof. RNI	Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	cience		
Course ID: ÚMV/ dZMG/14	ourse ID: ÚMV/ Course name: Obtaining of a mobility grant ZMG/14		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of credits: 1			
Recommended seme	ster/trimester of the cours	e:	
Course level: 111.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 2			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Šafá	University: P. J. Šafárik University in Košice				
Faculty: Faculty of Science					
<b>Course ID:</b> ÚMV/ dUAS/10	Course name: Ordered alg	ebraic structures			
Course type, scope a Course type: Lectur Recommended cour Per week: 3 Per stu Course method: pre	Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 3 Per study period: 42 Course method: present				
Number of credits: 5	;				
Recommended seme	ster/trimester of the cours	e: 2., 4.			
Course level: III.					
Prerequisities:					
<b>Conditions for cours</b> examination	e completion:				
Learning outcomes: To acquire fundame obtained knowledge mathematical probler	<b>Learning outcomes:</b> To acquire fundamentals of theory of ordered algebraic structures connecting them with obtained knowledge of algebra, to distend and generalize; application on concrete exercises and mathematical problems.				
<b>Brief outline of the course:</b> Partially ordered, linearly ordered, lattice ordered groups. Convex subgroups, absolute value and orthogonality, order of factor classes. Archimedean ordered structures. Partially ordered and linearly ordered rings, fields, lattice ordered rings.					
Recommended literature: L.Fuchs: Partially ordered algebraic systems, Pergamon Press, 1963. T.S.Blyth: Lattices and Ordered Algebraic Structures, Springer Verlag, London, 2005. E.Harsheim: Ordered sets, Springer Verlag, 2005. G.Grätzer: Universal algebra. Second Edition. Springer 2008.					
Course language: Slovak and English					
Notes:					
Course assessment Total number of assessed students: 10					
	N P				
	0.0 100.0				
Provides: prof. RNDr. Danica Studenovská, CSc.					
Date of last modification: 03.05.2015					
Approved: prof. RNDr. Mirko Horňák, CSc.					

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	cience		
Course ID: ÚMV/ ODP/14	Course ID: ÚMV/ Course name: PhD thesis defence		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of credits: 3			
Recommended seme	ster/trimester of the cours	2:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 9			
N P			
0.0 100.0			
Provides:			
Date of last modification: 03.05.2015			
Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Šafárik University in Košice					
Faculty: Faculty of S	Faculty: Faculty of Science				
Course ID: ÚMV/ dPLT/10	Course name: Polyhedral	heory			
Course type, scope a Course type: Lectur Recommended cour Per week: 4 Per stu Course method: pre	Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 4 Per study period: 56 Course method: present				
Number of credits: 7	7				
Recommended seme	ster/trimester of the cours	e: 4.			
Course level: III.					
Prerequisities:					
<b>Conditions for cours</b> Oral exam.	e completion:				
Learning outcomes: Mastered basic know	ledge and results of theory of	of convex polyhedra on up-to-date level			
<b>Brief outline of the course:</b> Polyhedral maps on surfaces. Combinatorial structure of polyhedra. Polyhedral graphs. Euler's formula. Steinitz theorem for 3-dimensional polyhedra. Schlegel's diagrams. Gale's diagrams. Face and vertex structure of polyhedra. More dimensional polyhedra.					
<ul> <li>Recommended literature:</li> <li>1. W. Cook, P.D. Seymour: Polyhedral Combinatorics, American Society, 1990.</li> <li>2. B. Grunbaum: Convex Polytopes, (2-nd edition), Springer-Verlag New York, 2003</li> <li>3. E. Jucovič: Convex polytopes. Veda, Bratislava, 1981</li> <li>4. G.M. Ziegler: Lectures on Polytopes, Springer-Verlag, New York, 1995</li> <li>5. Journal references.</li> </ul>					
Course language: Slovak and English					
Notes:					
Course assessment Total number of assessed students: 7					
	Ν	Р			
	0.0	100.0			
Provides: prof. RNDr. Stanislav Jendrol', DrSc.					
Date of last modification: 03.05.2015					
Approved: prof. RNI	Approved: prof. RNDr. Mirko Horňák, CSc.				

University: P. J. Šafá	rik University in Košice			
Faculty: Faculty of S	Faculty: Faculty of Science			
<b>Course ID:</b> ÚMV/ dPDK/12	urse ID: ÚMV/ Course name: Presentation of results at a local conference			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present				
Number of credits: 2				
Recommended seme	ster/trimester of the cours	e:		
Course level: III.	Course level: III.			
Prerequisities:				
Conditions for cours	e completion:			
Learning outcomes:				
Brief outline of the c	ourse:			
Recommended litera	iture:			
Course language:				
Notes:				
Course assessment Total number of assessed students: 16				
abs n				
100.0 0.0				
Provides:				
Date of last modification:				
Approved: prof. RNDr. Mirko Horňák, CSc.				

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚMV/ dPDZ/12	<b>Course name:</b> Presentation of results at a local conference with international participation		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of credits: 4			
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 61			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. RNI	Dr. Mirko Horňák, CSc.		

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	Faculty: Faculty of Science		
Course ID: ÚMV/ dVMK/14	<b>rse ID:</b> ÚMV/ <b>Course name:</b> Presentation of results at an international conference		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of credits: 6	)		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 21			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	Faculty: Faculty of Science		
<b>Course ID:</b> ÚMV/ dPSM/12	ourse ID: ÚMV/ SM/12Course name: Presentation of results in a seminar		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of credits: 2			
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 77			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	Faculty: Faculty of Science		
Course ID: ÚMV/ dVOP/12	ourse ID: ÚMV/ Course name: Reviewer report		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of credits: 2			
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
<b>Course assessment</b> Total number of assessed students: 0			
abs n			
0.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	Faculty: Faculty of Science		
Course ID: ÚMV/ dPNC/12	<b>ID:</b> ÚMV/ <b>Course name:</b> Scientific publication in non-current content journal 2		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of credits: 5			
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 13			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Šafá	rik University in Košice			
Faculty: Faculty of Science				
Course ID: ÚMV/ dPNZ/12	D: ÚMV/ Course name: Scientific publication in non-reviewed proceedings			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present				
Number of credits: 2				
Recommended seme	ster/trimester of the cours	e:		
Course level: III.	Course level: III.			
Prerequisities:				
Conditions for cours	e completion:			
Learning outcomes:				
Brief outline of the c	ourse:			
Recommended litera	iture:			
Course language:				
Notes:	Notes:			
Course assessment Total number of assessed students: 24				
abs n				
100.0 0.0				
Provides:				
Date of last modification:				
Approved: prof. RNI	Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Šafá	rik University in Košice			
Faculty: Faculty of S	Faculty: Faculty of Science			
<b>Course ID:</b> ÚMV/ dPRZ/12	<b>Se ID:</b> ÚMV/ <b>Course name:</b> Scientific publication in peer-reviewed proceedings			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present				
Number of credits: 5				
Recommended seme	ster/trimester of the cours	e:		
Course level: III.	Course level: III.			
Prerequisities:				
Conditions for cours	e completion:			
Learning outcomes:				
Brief outline of the c	ourse:			
Recommended litera	iture:			
Course language:				
Notes:	Notes:			
Course assessment Total number of assessed students: 21				
	abs n			
100.0 0.0				
Provides:				
Date of last modification:				
Approved: prof. RNI	Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Šafá	University: P. J. Šafárik University in Košice			
Faculty: Faculty of S	Faculty: Faculty of Science			
<b>Course ID:</b> ÚMV/ dPCR/12	ÚMV/ <b>Course name:</b> Scientific publication registered in the database Math. Reviews or Zentralblatt MATH			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present				
Number of credits: 1	5			
Recommended seme	ster/trimester of the cours	e:		
Course level: III.	Course level: III.			
Prerequisities:				
Conditions for cours	e completion:			
Learning outcomes:				
Brief outline of the c	ourse:			
Recommended litera	iture:			
Course language:				
Notes:				
Course assessment Total number of assessed students: 8				
	abs n			
100.0 0.0				
Provides:				
Date of last modification:				
Approved: prof. RNDr. Mirko Horňák, CSc.				

University: P. J. Šafá	rik University in Košice			
Faculty: Faculty of S	Faculty: Faculty of Science			
<b>Course ID:</b> ÚMV/ dPCW/12	<b>D:</b> ÚMV/ <b>Course name:</b> Scientific publication registered in the database Web of Science or Scopus			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present				
Number of credits: 2	20			
Recommended seme	ster/trimester of the cours	e:		
Course level: III.	Course level: III.			
Prerequisities:				
Conditions for cours	e completion:			
Learning outcomes:				
Brief outline of the c	ourse:			
Recommended litera	iture:			
Course language:				
Notes:				
Course assessment Total number of assessed students: 33				
	abs n			
100.0 0.0				
Provides:				
Date of last modification:				
Approved: prof. RNDr. Mirko Horňák, CSc.				

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚMV/ dCSC/12	ourse ID: ÚMV/ Course name: SCI or SCOPUS citation		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of credits: 2	.0		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 2			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	Faculty: Faculty of Science		
<b>Course ID:</b> ÚMV/ dVTGa/10	Course name: Selected topics in graph theory I		
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present			
Number of credits: 7	1		
Recommended seme	ster/trimester of the cours	e: 2.	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes: Mastering some of th	e recent trends in graph the	Dry.	
Brief outline of the c Selected topics from	Brief outline of the course: Selected topics from up-to-date graph theory		
<b>Recommended literature:</b> Recent publications from international scientific journals.			
<b>Course language:</b> Slovak and English	Course language: Slovak and English		
Notes:			
Course assessment Total number of assessed students: 20			
	N P		
0.0 100.0			
Provides: doc. RNDr. Roman Soták, PhD., prof. RNDr. Mirko Horňák, CSc., prof. RNDr. Stanislav Jendrol', DrSc., doc. RNDr. Jaroslav Ivančo, CSc., doc. RNDr. Tomáš Madaras, PhD.			
Date of last modification: 03.05.2015			
Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Šafár	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
<b>Course ID:</b> ÚMV/ dVTGb/10	ourse ID: ÚMV/ VTGb/10Course name: Selected topics in graph theory II		
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present			
Number of credits: 7			
Recommended seme	ster/trimester of the cours	e: 3.	
Course level: III.			
Prerequisities:			
<b>Conditions for cours</b> Oral examination	e completion:		
Learning outcomes: Knowledge about up-	to-date trends in the graph t	heory.	
Brief outline of the c Selected topics from	ourse: up-to-date graph theory.		
Recommended litera Recent literature from	Recommended literature: Recent literature from international scientific journals		
Course language: Slovak and English			
Notes:			
Course assessment Total number of assessed students: 16			
	Ν	Р	
0.0 100.0			
<b>Provides:</b> doc. RNDr. Roman Soták, PhD., prof. RNDr. Mirko Horňák, CSc., prof. RNDr. Stanislav Jendrol', DrSc., prof. RNDr. Danica Studenovská, CSc., doc. RNDr. Jaroslav Ivančo, CSc., doc. RNDr. Tomáš Madaras, PhD.			
Date of last modification: 03.05.2015			
Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
<b>Course ID:</b> ÚMV/ dPPC/12	Course name: Semestral pedagogical activity		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of credits: 5			
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:	Course language:		
Notes:			
Course assessment Total number of assessed students: 96			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Safarik University in Kosice		
Faculty: Faculty of Science		
Course ID: Dek. PF       Course name: Spring School for PhD Students         UPJŠ/JSD/14		
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: Per study period: 4d Course method: present		
Number of credits: 2		
Recommended semester/trimester of the course:		
Course level: III.		
Prerequisities:		
Conditions for course completion:		
Learning outcomes:		
Brief outline of the course:		
Recommended literature:		
Course language:		
Notes:		
Course assessment Total number of assessed students: 68		
abs n		
100.0 0.0		
Provides: doc. RNDr. Vladimír Zeleňák, PhD.		
Date of last modification: 03.05.2015		
Approved: prof. RNDr. Mirko Horňák, CSc.		

University: P. J. Šafá	University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science				
<b>Course ID:</b> ÚMV/ dZSP/12	Durse ID: ÚMV/ Course name: Study stay abroad			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present				
Number of credits: 4				
Recommended seme	ster/trimester of the cours	e:		
Course level: III.				
Prerequisities:				
Conditions for cours	e completion:			
Learning outcomes:				
Brief outline of the c	ourse:			
<b>Recommended litera</b>	iture:			
Course language:	Course language:			
Notes:				
Course assessment Total number of assessed students: 7				
abs n				
100.0 0.0				
Provides:				
Date of last modification:				
Approved: prof. RNI	Dr. Mirko Horňák, CSc.	Approved: prof. RNDr. Mirko Horňák, CSc.		

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚMV/ dDZS/14	Course name: Summary doctoral exam		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of credits: 5	5		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
<b>Conditions for course completion:</b> Acquiring the required number of credits in the structure defined by the study plan.			
Learning outcomes: Evaluation of student	t's competences with respec	t to the profile of the graduate.	
<b>Brief outline of the course:</b> The summary doctoral exam is organised as a discourse focusing on 3 courses serving as credit sources for a PhD student (the course is chosen by the supervisor of the student after consulting with the guarantee of the study programme).			
Recommended literature:			
Course language: slovak			
Notes:			
Course assessment Total number of assessed students: 4			
	Ν	Р	
	0.0 100.0		
Provides:			
Date of last modification: 03.05.2015			
Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚMV/ dVBP/12	Course name: Supervising a bachelor thesis		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of credits: 6			
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:	Course language:		
Notes:			
Course assessment Total number of assessed students: 3			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
<b>Course ID:</b> ÚMV/ dVPS/12	Course name: Supervising a student's scientific work		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of credits: 6	)		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:	Course language:		
Notes:			
Course assessment Total number of assessed students: 2			
abs n			
100.0 0.0			
Provides:			
Date of last modification:			
Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚMV/ dTPG/14Course name: Theory of Planar Graphs	V/ Course name: Theory of Planar Graphs		
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 4 Per study period: 56 Course method: present			
Number of credits: 7			
Recommended semester/trimester of the course: 1., 3.			
Course level: III.			
Prerequisities:			
Conditions for course completion:			
<b>Learning outcomes:</b> To obtain the knowledge on basic and advanced topics related to planar and plane graphs.			
<b>Brief outline of the course:</b> Basics of topology of the plane. Planar and plane graphs. Characterizations of planarity. Euler formula and its corollaries. Local structure of planar and plane graphs, the discharging method. Proper and generalized colourings of planar and plane graphs. Separators in planar graphs			
<b>Recommended literature:</b> T. Nishizeki, N. Chiba: Planar graphs: Theory and Algorithms, Dover Publications, 2008 S. Jendrol', H-J. Voss: Light subgraphs of graphs embedded in the plane - A survey, Discrete Mathematics Vol. 313, no. 4 (2013) 406-421.			
Course language: Slovak and English			
Notes:			
Course assessment Total number of assessed students: 0			
N P			
0.0 0.0			
Provides: doc. RNDr. Tomáš Madaras, PhD.			
Date of last modification: 03.05.2015			
Approved: prof. RNDr. Mirko Horňák, CSc.			

University: P. J. Šafá	rik University in Koši	ce	
Faculty: Faculty of Science			
<b>Course ID:</b> ÚMV/ dPDS/14	Course name: Thesis to the summary doctoral exam		
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	nd the method: rse-load (hours): y period: esent		
Number of credits: 1	5		
Recommended seme	ster/trimester of the	course:	
Course level: III.			
Prerequisities:			
Conditions for cours Obtaining required no	e completion: umber of credits as given by the second se	ven by the study plan.	
Learning outcomes: Evaluation of student	's competences with 1	respect to the profile of the graduate.	
Brief outline of the course:			
Recommended literature:			
<b>Course language:</b> Slovak or English			
Notes:	Notes:		
Course assessment Total number of asses	ssed students: 5		
	abs	n	
100.0 0.0			
Provides:			
Date of last modifica	tion: 03.05.2015		
Approved: prof. RNI	Dr. Mirko Horňák, CS	c	

University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science		
Course ID: ÚMV/ dTTG/10	Course name: Topological	graph theory
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 4 Per study period: 56 Course method: present		
Number of credits: 7	7	
Recommended seme	ster/trimester of the cours	<b>e:</b> 1., 3.
Course level: III.		
Prerequisities:		
<b>Conditions for cours</b> Skúška	e completion:	
<b>Learning outcomes:</b> Oboznámiť sa so zák	ladnými metódami a poznať	kami Topologickej teórie grafov.
<b>Brief outline of the course:</b> Planárne grafy. Plochy. Vnorenia. Napäťové grafy a pokrývajúce priestory. Rod grafov. Rody grúp. Farbenia grafov na plochách. Neodstraniteľné konfigurácie. Reprezentativita grafov na plochách. Stromová šírka grafov. Minory. Zakázané konfigurácie pre plochy.		
<ul> <li>Recommended literature:</li> <li>1. G. Gross, T.W. Tucker: Topological Graph Theory, John Wiley and Sons, New York, 1987</li> <li>2. B. Mohar, C., Thomassen: Graphs on Surfaces, The Johns Hopkins University Press, Baltimore, 2001</li> <li>3. G. Ringel: Map Color Theorem, Springer-Verlag, Berlin, 1974</li> <li>4. Journal articles</li> </ul>		
Course language: Slovak or English		
Notes:		
Course assessment Total number of assessed students: 23		
	Ν	Р
	0.0 100.0	
Provides: doc. RNDr. Roman Soták, PhD.		
Date of last modification: 03.05.2015		
Approved: prof. RNDr. Mirko Horňák, CSc.		

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
<b>Course ID:</b> ÚMV/ dUAL/10	Course name: Universal al	gebra	
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 3 Per study period: 42 Course method: present			
Number of credits: 5	5		
Recommended seme	ster/trimester of the cours	e: 1., 3.	
Course level: III.			
Prerequisities:			
<b>Conditions for cours</b> Exam consisting of a	<b>Se completion:</b> written test and of a oral example.	amination.	
<b>Learning outcomes:</b> To continue in obtaining a deeper knowledge in universal algebra and in its generalization; to be able to apply the knowledge in investigating concrete situations.			
<b>Brief outline of the course:</b> Relations, operations, algebraic structures. Congruences, homomorphism and isomorphism theorems. Application to abstract automata and other structures. Automorphism groups and endomorphism monoids of algebraic structures, abstract and concrete representation problem. Subalgebras. Direct and subdirest product. Direct and inverse limit of algebras. Terms. Free algebras. Birkhoff theorems about varieties. Structures and 1st order logic.			
<ul> <li>Recommended literature:</li> <li>G. Grätzer: Universal Algebra, 2nd Edition, Springer Verlag, Berlin - New York, 2008.</li> <li>S.Burris, H.P.Sankappanavar: A Course in Universal Algebra. Springer-Verlag, 1981;</li> <li>online http://orion.math.iastate.edu/cliff/BurrisSanka.pdf.</li> <li>V.P.Snaith: Groups, Rings and Galois Theory, Word Scientific Publ. Co.,New Jersey-London-Singapore, 2003.</li> <li>M. Kolibiar a kol.: Algebra a príbuzné disciplíny, Bratislava, 1992.</li> <li>B. Jónsson: Topics in Universal Algebra, Springer-Verlag, 1972.</li> </ul>			
Course language: Slovak and English			
Notes:			
Course assessment Total number of assessed students: 13			
	N P		
	0.0 100.0		
Provides: prof. RND	r. Danica Studenovská, CSc.		

**Date of last modification:** 03.05.2015

Approved: prof. RNDr. Mirko Horňák, CSc.