COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/ANP/13	**Course name:** Algorithmic unsolved problems

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: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
To introduce the student into most important results about non-existence of an algorithm for solving given problem.

Brief outline of the course:
Axiomatic theories of natural numbers. Definibality of recursive functions. Tarski theorem on undefinability of truth in formalized arithmethic. Godel incompletness theorem.
Algorithmic unsolvability of particular mathematical problems. Non-existence of an algorithm for deciding the existence of a solution of Diophantine equations. Reduction of problems and degrees of unsolvability.

Recommended literature:
J. Barwise ed., Handbook of Mathematical Logic, North Holland 1977S. C. Kleene, Introduction to the Metamathematics, Van Nostrand 1952, ruský preklad Moskva 1957.
E. Mendelson, Introduction to Mathematical Logic, Van Nostrand 1963, ruský preklad Nauka Moskva 1976.
M. Davis, Hilbert's Tenth Problem is Unsolvable, Amer. Math. Monthly,1973, 233--269.
Ju.V. Matijasevič, Diofantovy Množestva, Usp. Mat. Nauk, 27 (1972), 185--222
L. Bukovský, Algoritmicky neriešiteľné problémy, učebný text v elektronickej forma na sieti Novel, PF UPJŠ, Košice, 2003

Course language:

Notes:

Course assessment
Total number of assessed students: 6

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Provides: doc. RNDr. Stanislav Krajči, PhD.

Date of last modification: 03.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KFaDF/AFS/05	**Course name:** Antique Philosophy and Present Times

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 semester/trimester of the course: 2.

Course level: I., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 30

A	B	C	D	E	FX
83.33	6.67	6.67	0.0	3.33	0.0

Provides: doc. PhDr. Pavol Tholt, PhD., mim.prof., Doc. PhDr. Peter Nezník, CSc.

Date of last modification: 26.01.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/TGSF/10	**Course name:** Applications of Graph Theory in Statistical Physics

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: 3

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
To become familiar with the most significant applications of a graph theory in statistical physics.

Brief outline of the course:
An introduction to thermodynamics and statistical physics. Basic notions of graph theory and their equivalents in physics. The Ising model and its various applications in statistical physics. Exact solution for the planar Ising model as a graph-theoretical problem. High-temperature and low-temperature series expansion, the dual transformation and critical behaviour. The coloring problem of planar graphs and its equivalence with the calculation of a residual entropy of the Ising models. Ice-type models and their various applications in statistical physics. The first-order phase transitions and their analysis with the help of AG inequality. The Potts model and its various applications in statistical physics.

Recommended literature:

Course language:
EN - english

Notes:

Course assessment
Total number of assessed students: 7

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Provides: doc. RNDr. Jozef Strečka, PhD.

Date of last modification: 31.01.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ ATG/13	**Course name:** Applied graph theory

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 2 / 1 **Per study period:** 28 / 14
Course method: present

Number of credits: 5

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
Based on results of oral exam.

Learning outcomes:
To provide an overview of graph theory applications in computer science and other natural / social sciences.

Brief outline of the course:
The graph models of real-world problems. The elements of complex network analysis. Planarity testing, visualization and colouring algorithms and heuristics. Polynomial instances of NP-complete graph problems. Basics of probability method in graph theory.

Recommended literature:
U. Brandes, T. Erlebach: Network analysis. Methodological Foundations, Springer, 2005.

Course language:
Slovak or English

Notes:

Course assessment
Total number of assessed students: 8

A	B	C	D	E	FX
0.0	50.0	12.5	12.5	25.0	0.0

Provides: doc. RNDr. Tomáš Madaras, PhD.

Date of last modification: 14.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ ALA/10	**Course name:** Applied linear algebra

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 2 / 1 **Per study period:** 28 / 14
Course method: present

Number of credits: 5

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
According to tests and to the exam.

Learning outcomes:
To obtain basic knowledge on linear algebra; to be able to apply the theory in concrete excercises.

Brief outline of the course:
Matrices over Euclidean rings, canonical forms. Polynomial matrices. Similar matrices. Jordan normal form. Functions of matrices, sequences, series. Inversion of singular matrices, pseudoinverse matrices and their application.

Recommended literature:
H.E.Rose: Linear Algebra, A Pure Mathematical Approach, Birkhäuser Verlag, 2002.
D.Serre: Matrices, Theory and applications, Springer Verlag, 2002.
http://www.cs.ut.ee/~toomas_l/linalg/

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 23

A	B	C	D	E	FX
43.48	8.7	21.74	4.35	21.74	0.0

Provides: prof. RNDr. Danica Studenovská, CSc.

Date of last modification: 14.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/APA1/09	**Course name:** Approximation algorithms

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 2 / 1 **Per study period:** 28 / 14
Course method: present

Number of credits: 5

Recommended semester/trimester of the course: 3.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 110

A	B	C	D	E	FX
19.09	14.55	24.55	18.18	22.73	0.91

Provides: prof. RNDr. Viliam Geffert, DrSc., doc. RNDr. Gabriel Semanišin, PhD., RNDr. Ondrej Krídlo, PhD.

Date of last modification: 03.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ KKV1/06	**Course name:** Classical and quantum computations

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 3 / 1 **Per study period:** 42 / 14
Course method: present

Number of credits: 6

Recommended semester/trimester of the course: 3.

Course level: II.

Prerequisities:

Conditions for course completion:
Written work
Writen and oral examination

Learning outcomes:
To provide information on quantum computer and quantum computations. To compare classical and quantum models and methods.

Brief outline of the course:
The basics of classical theory of computation: Turing machines, Boolean circuits, parallel algorithms, probabilistic computation, NP-complete problems, and the idea of complexity of an algorithm. Introduction of general quantum formalism (pure states, density matrices, and superoperators), universal gate sets and approximation theorems. Grover's algorithm, Shor's factoring algorithm, and the Abelian hidden subgroup problem. Parallel quantum computation, a quantum analogue of NP-completeness, and quantum error-correcting codes.

Recommended literature:
1. BERMAN,G.P., DOOLEN,G.D., MAINIERI, R., TSIFRINOVIC, V.I. Introduction to Quantum Computers. World Scientific, 2003.
2. GRUSKA, J. Quantum Computing. McGraw-Hill, 1999.
3. JOHNSON, G. A Shortcut Through Time: The Path to the Quantum Computer, Knopf 2003.
4. KITAEV, A.Y., SHEN, A.H., VYALYI, M.N. Classical and Quantum Computation. American Mathematical Society, 2002.
5. NIELSEN, M.A., CHUANG, I.L. Quantum Computation and Quantum Information. Cambridge University Press, 2000.
6. HIRVENSALO, M., Quantum Computing, Springer 2004

Course language:

Notes:

Course assessment
Total number of assessed students: 65

A	B	C	D	E	FX
24.62	27.69	12.31	20.0	10.77	4.62

Provides: doc. RNDr. Gabriel Semanišin, PhD., RNDr. Zuzana Bednárová, PhD.

Date of last modification: 03.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/ KPI1/01	**Course name:** Coding and information transfer

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: 1., 3.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
To provide the students a knowledge of basic principles of information theory, coding and data compression.

Brief outline of the course:
Introduction to information theory, entropy, Markov models. Huffman coding, adaptive Huffman coding, applications. Arithmetic coding, dictionary techniques, applications. Lossless image compression. Scalar and vector quantizations. Differential encoding, delta modulation, subband coding, wavelets. Transform coding, DFT, DCT, application to JPEG. Analysis/synthesis schemes, fractal compression. Video compression.

Recommended literature:
D. Hankersson, G. Harris, P. Johnson: Introduction to Information Theory and Data Compression, CRC Pr.,1998
K. Sayood: Introduction to Data Compression, Morgan Kaufmann, 1996
J. Adámek: Coding and Inormation Theory, ČVUT, 1994 (Czech)

Course language:

Notes:

Course assessment
Total number of assessed students: 84

A	B	C	D	E	FX
20.24	15.48	19.05	14.29	29.76	1.19

Provides: doc. RNDr. Stanislav Krajči, PhD., doc. RNDr. Jozef Jirásek, PhD.

Date of last modification: 03.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ KOA/10	**Course name:** Combinatorial algorithms

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: 6

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
Oral examination

Learning outcomes:
Mastered an ability to understand the close tie between the theoretical and algorithmic aspects of discrete mathematics and to show how algorithms can be extacted from theorems. Ability in proving algorithm correctness.

Brief outline of the course:
Introduction to graphs.
Introduction to algorithms and complexity. Sorting algorithms. Search algorithms. Greedy algorithms. NP-completeness.
Trees and rooted trees. Generating all spanning trees of a graph. Minimum spanning tree problem.
Distance in graphs. Shortest path problem and its analogues. The most reliable path. The largest capacity path. The path with the largest expected capacity.
Location centres and medians.
Networks: An introduction to networks, the max-flow min-cut theorem. Related problems.
Matchings: Maximum matchings in bipartite graphs. Maximum matchings in general graphs. Transportation and assignment problems.
Eulerian graphs and Chinese postman's problem.
Hamiltonian graphs. Travelling salesman problem.

Recommended literature:
1. G. Chartrand, O.R. Vellermann: Applied and Algorithmic Graph Theory, McGraw-Hill, Inc. New York 1993.
2. N. Christofides: Graph Theory - An Algorithmic Approach, Academic Press, New York 1975 (Russian translation from 1978).
3. D. Jungnickel: Graphs, Networks, and Algorithms, Springer-Verlag Berlin 2005.
4. J. Plesník: Grafové algoritmy, Veda Bratislava 1983.
5. M. N. S. Swamy, K. Thulasiraman: Graphs, networks, and algorithms. John Wiley and Sons, New York 1981.

Course language:

Slovak

Notes:

Course assessment
Total number of assessed students: 77

A	B	C	D	E	FX
35.06	19.48	20.78	10.39	12.99	1.3

Provides: prof. RNDr. Stanislav Jendroľ, DrSc., RNDr. Pavol Široczki

Date of last modification: 14.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/KDZ/10	**Course name:** Combinatorial designs

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: 4

Recommended semester/trimester of the course: 3.

Course level: II.

Prerequisities:

Conditions for course completion:
Based on results of oral exam.

Learning outcomes:
To present the basics of theory of combinatorial designs and their applications in sciences.

Brief outline of the course:
2-designs, balanced designs. Symmetric designs, Hadamard matrices, finite projective planes. Steiner systems.

Recommended literature:
I. Anderson, I. Honkala: A short course in combinatorial designs, http://www.utu.fi/~honkala/cover.html
D.R. Stinson: Combinatorial Designs: Constructions and Analysis, Springer 2004
W.D. Wallis: Combinatorial designs, Marcel Dekker 1988

Course language:
Slovak or English

Notes:

Course assessment
Total number of assessed students: 60

A	B	C	D	E	FX
21.67	21.67	28.33	21.67	6.67	0.0

Provides: doc. RNDr. Tomáš Madaras, PhD.

Date of last modification: 14.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/KK/07	**Course name:** Communication and Cooperation
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 semester/trimester of the course: 3.	
Course level: II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 281

abs	n	z
98.22	1.78	0.0

Provides: Mgr. Ondrej Kalina, PhD.
Date of last modification: 04.02.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/ VYZ1/04	**Course name:** Computational complexity

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: 2 **Per study period:** 28
Course method: present

Number of credits: 4

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
Oral examination.

Learning outcomes:
To give the students the theoretical background in computational complexity and theory of NP-completeness.

Brief outline of the course:
Deterministic and nondeterministic algorithms with polynomial time, NP-completeness. Deterministic simulation of a nondeterministic Turing machine. Satisfiability of Boolean formulae. Another NP-complete problems: satisfiability of a formula in a conjunctive normal form, 3-satisfiability, 3-colorability of a graph, 3-colorability of a planar graph, knapsack problem, balancing, ... Space bounded computations, classes LOG-space and P-space. Deterministic simulation - Savitch theorem. Closure under complement Classification of computational complexity of problems.

Recommended literature:
A.V.Aho and J.D.Ullman. The design and analysis of computer algorithms. Addison-Wesley, 1974.
P.van Emde Boas. Machine models and simulations. In J.van Leeuwen (ed.): Handbook of theoretical computer science. North-Holland, 1990.
Ch.K.Yap. Introduction to the theory of complexity classes. To be published by Oxford Univ. Press. (Electronic version available via anonymous ftp://cs.nyu.edu/pub/local/yap/complexity-bk).

Course language:

Notes:

Course assessment
Total number of assessed students: 296

A	B	C	D	E	FX
52.36	14.86	14.53	9.8	8.45	0.0

Provides: prof. RNDr. Viliam Geffert, DrSc.
Date of last modification: 03.02.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ TSS/10	**Course name:** Control theory

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: 6

Recommended semester/trimester of the course: 1., 3.

Course level: II.

Prerequisities:

Conditions for course completion:
Based on two written tests during the semester and on the oral examination.

Learning outcomes:
To learn the basic notions of controllable systems.

Brief outline of the course:
Controllable systems. Pontrjagin maximum principle. Linear systems, bang-bang controls, singular controls.. Discrete systems, dynamic programming, Bellmann's optimality principle. Practical applications of theoretical results.

Recommended literature:
1. K. Macki, A. Strauss: Introduction to Optimal Control Theory, Springer, 1980.
2. G. Feichtinger, R.F. Hartl: Optimale Kontrolle okonomischer Prozesse, Berlin, 1986.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 109

A	B	C	D	E	FX
26.61	25.69	22.02	15.6	10.09	0.0

Provides: prof. RNDr. Katarína Cechlárová, DrSc.

Date of last modification: 14.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/ DBS/10	**Course name:** Database systems for Mathematicians

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 3 / 2 **Per study period:** 42 / 28
Course method: present

Number of credits: 6

Recommended semester/trimester of the course: 1., 3.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
Acquired basic concepts and techniques of relational database theory and corresponding software.

Brief outline of the course:
Data models. Languages for defining and manipulating data (DDL, DML). Tables, attributes and integrity constraints. Queries: select, where, group by, aggregate and system functions. Nested queries and several tables: join, union, primary, foreign key. Relational algebra. Database modelling. Functional dependency and normalization.

Recommended literature:
- S. Krajčí: Databázové systémy, UPJŠ, 2005 2. J.
- Date C.J., Database Design and Relational Theory, O'Reilly, 2012
- Atkinson, P., Vierra, R., BEGINNING MICROSOFT SQL SERVER 2012 PROGRAMMING, John Wiley - Wrox, 2012
- Itzik Ben-Gan, Microsoft SQL Server, 2012 T-SQL Fundamentals, O'Reilly, 2012
- L. Davidson, J.M. Moss, Pro SQL Server 2012 Relational database Design and Implementation, APRESS, 2012

Course language:

Notes:

Course assessment
Total number of assessed students: 717

A	B	C	D	E	FX
12.41	9.34	13.25	20.36	34.45	10.18

Provides: doc. RNDr. Csaba Török, CSc.

Date of last modification: 03.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ DPP1a/14	**Course name:** Diploma Project I
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 semester/trimester of the course: 2.	
Course level: II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language: Slovak	
Notes:	
Course assessment Total number of assessed students: 79	
abs	n
98.73	1.27
Provides:	
Date of last modification: 14.02.2014	
Approved: prof. RNDr. Mirko Horňák, CSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ DPP1b/14	**Course name:** Diploma Project II
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 semester/trimester of the course: 3.	
Course level: II.	
Prerequisities: ÚMV/DPP1a/14	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language: Slovak	
Notes:	
Course assessment Total number of assessed students: 68	

abs	n
98.53	1.47

Provides:
Date of last modification: 14.02.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ DPO/14	**Course name:** Diploma thesis and its defence

Course type, scope and the method:
Course type:
Recommended course-load (hours):
Per week: Per study period:
Course method: present

Number of credits: 20

Recommended semester/trimester of the course:

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 9

A	B	C	D	E	FX
44.44	33.33	11.11	0.0	0.0	11.11

Provides:

Date of last modification: 14.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/ VEP1/09	**Course name:** Formal methods in a verification

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: 5

Recommended semester/trimester of the course: 2., 4.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 18

A	B	C	D	E	FX
27.78	22.22	22.22	16.67	0.0	11.11

Provides: doc. RNDr. Gabriela Andrejková, CSc., Mgr. Alexander Szabari, PhD.

Date of last modification: 03.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/ ZNA1/06	**Course name:** Foundations of knowledge systems

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: 1.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
The

Brief outline of the course:
S

Recommended literature:
Hedman S.: A first course in logic: An introduction to model theory, proof theory, computability and complexity. Oxford university press, 2006
Nienhuys-Cheng Sh.H., Wolf R.: Foundations of Inductive Logic Programming, Springer-Verlag, 1997
Nilsson U., Maluszynski J.: Logic, Programming and Prolog, John Wiley & Sons Ltd. 1995
Bělohlávek R.: Fuzzy Relational Systems: Foundations and Principles. Kluwer, Academic/ Plenum Publishers, New York, 2002
Ganter B., Wille R.: Formal Concept Analysis: Mathematical Foundations, Springer Berlin, 1999

Course language:

Notes:

Course assessment
Total number of assessed students: 60

A	B	C	D	E	FX
15.0	15.0	20.0	21.67	21.67	6.67

Provides: RNDr. Ondrej Krídlo, PhD.

Date of last modification: 12.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/FML/13	**Course name:** Fuzzy sets and fuzzy logic

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 2 / 1 **Per study period:** 28 / 14
Course method: present

Number of credits: 4

Recommended semester/trimester of the course: 2., 4.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
To understand basic notions of fuzzified approach to the mathematical logic and the set theory.

Brief outline of the course:
Motivation.
Definitions of basic notions.
Fuzzy logic as an extension of classical one.
Different types of fuzzy logics.
Fuzzy connections (t-norms, t-conorms).
Fuzzy relations, Chu spaces.

Recommended literature:
1. H. T. Nguyen, E. A. Walker: A First Course in Fuzzy Logic, Chapman & Hall/CRC, 2006
2. V. Novák: Fuzzy množiny a ich aplikace, SNTL Praha 1986, in Czech, 1986

Course language:

Notes:

Course assessment
Total number of assessed students: 3

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Provides: doc. RNDr. Stanislav Krajči, PhD.

Date of last modification: 03.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ THR/10	**Course name:** Game theory

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: 6

Recommended semester/trimester of the course: 1., 3.

Course level: II.

Prerequisities:

Conditions for course completion:
Two written exams dring the semester. The final assessment is based on the written tests and oral examination.

Learning outcomes:
To learn the basic methods of game theory. We also require that students will be able to model situations from everyday life as simple games.

Brief outline of the course:
Examples of games. Extensive form of a game, value of the game. Von Neumann Morgenstern theory of utility. Matrix games and their solution. Bimatrix games.Theory of negotiations. n-person games: core, Shapley value. Economic applications of game theory.
The students should have basic knowledge in probability theory and linear programming (including duality theory and simplex method).

Recommended literature:
1. K. Binmore, Fun and games, D.C. Heath, 1992
2. M. Chobot, F. Turnovec, V. Ulašin, Teória hier a rozhodovania, Alfa, Bratislava, 1991.
3. G. Owen, Game Theory, Academic Press (existuje ruský preklad).
4. L.C. Thomas, Games, Theory and Applications, Wiley, New York.
5. H.S. Bierman, L.Fernandez, Game Theory with Economic Applications, Addison-Wesley, 1998.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 112

A	B	C	D	E	FX
17.86	22.32	17.86	24.11	16.96	0.89

Provides: prof. RNDr. Katarína Cechlárová, DrSc.

Date of last modification: 14.02.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ GZB/10	**Course name:** Geometric transformations

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: 5

Recommended semester/trimester of the course: 1., 3.

Course level: II.

Prerequisities:

Conditions for course completion:
Exam realized by a test.

Learning outcomes:
To obtain a deeper knowledge on projective spaces and transformation groups.

Brief outline of the course:
Projective spaces, Projective transformations, collineations. Fixed elements of a collineation. A clasification of collineations.

Recommended literature:
S. V. Duzhin, B. D. Chebotarevsky: Transformation Groups for Beginers, AMS 2004

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 24

A	B	C	D	E	FX
33.33	29.17	25.0	8.33	4.17	0.0

Provides: doc. RNDr. Jaroslav Ivančo, CSc.

Date of last modification: 14.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ TGF/10	**Course name:** Graph theory

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: 2 **Per study period:** 28
Course method: present

Number of credits: 4

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
Oral exam.

Learning outcomes:
Basic knowledge concerning methods how new discoveries in matematics. Deeper knowledge on selected topics in graph theory.

Brief outline of the course:
Embeddings graphs into surfaces.
Global properties of embedded graphs: Oblique graphs (Voigt and Walther´s theorem), Platonic and Archimedean solids.
Introduction into the theory of light graphs: Kotzig´s theorem, Borodin´s theorem, Fabrici and Jendroľ´s theorem, light paths.
Introduction into colourings of embedded graphs: The four colour theorem, rainbow colourings, parity colourings, and non-repetitive colourings.
Words and colourings.

Recommended literature:
1. J. Barat, J. Czap: Facial nonrepetitive verxex coloring of plane graphs, J. Graph Theory, DOI:10.1002/jgt21695.
2. J. A. Bondy, U.S R. Murty: Graph Theory, Springer 2008.
3. J. Czap, S. Jendrol', F. Kardoš, R. Soták: Facial parity edge colouring of plane pseudographs, Discrete Math. 312(2012), 2735-2740.
4. J. Czap, S. Jendroľ, M. Voigt: Parity vertex colouring of plane graphs, Discrete Math. 311(2011), 512-520.
5. G. Chartrand, L. Lesniak, P. Zhang: Graphs and digraphs, CRC Press, Boca Raton 2011.
6. F. Havet, S. Jendroľ, R. Soták, E. Škrabuľáková, Facial non-repetitive edge-coloring of plane graphs, J. Graph Theory 66(2011), 38-48.
7. S. Jendroľ, H.-J. Voss: Light subgraphs of graphs embedded in the plane - A Survey, Discrete Math. 313(2013), 406-421.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 45

A	B	C	D	E	FX
46.67	17.78	13.33	13.33	8.89	0.0

Provides: prof. RNDr. Stanislav Jendroľ, DrSc.

Date of last modification: 14.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ TGP/10	**Course name:** Group theory

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 2 / 1 **Per study period:** 28 / 14
Course method: present

Number of credits: 5

Recommended semester/trimester of the course: 2., 4.

Course level: II.

Prerequisities:

Conditions for course completion:
Awarded according to written and oral examination.

Learning outcomes:
The students learn basic concepts and methods of group theory and their applications in various parts of mathematics.

Brief outline of the course:
Groups of symmetries, abstract groups. Subgroups, orders of elements, cyclic groups. Normal subgroups, factorization. Classification of finitely generated abelian groups. Sylow 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: 35

A	B	C	D	E	FX
42.86	25.71	17.14	5.71	8.57	0.0

Provides: doc. RNDr. Miroslav Ploščica, CSc.

Date of last modification: 14.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KFaDF/ DF2p/03	**Course name:** History of Philosophy 2 (General Introduction)

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 2 / 1 **Per study period:** 28 / 14
Course method: present

Number of credits: 4

Recommended semester/trimester of the course: 2.

Course level: I., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 729

A	B	C	D	E	FX
60.49	13.85	12.76	8.78	3.43	0.69

Provides: doc. PhDr. Pavol Tholt, PhD., mim.prof., Doc. PhDr. Peter Nezník, CSc., PhDr. Katarína Mayerová, PhD., Mgr. Róbert Stojka, PhD.

Date of last modification: 26.01.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KFaDF/ KDF/05	**Course name:** Chapters from History of Philosophy of 19th and 20th Centuries (General Introduction)

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 semester/trimester of the course: 2.

Course level: I., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 10

A	B	C	D	E	FX
50.0	20.0	10.0	0.0	10.0	10.0

Provides: doc. PhDr. Pavol Tholt, PhD., mim.prof.

Date of last modification: 26.01.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB10/14	**Course name:** IB10 - Medzinárodný certifikát ECo-C
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 16	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB11/14	**Course name:** IB11 - Medzinárodný certifikát ECDL
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 14	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB12/14	**Course name:** IB12 - Používanie, administrácia a vývoj v systéme SAP
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 54	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB1/14	**Course name:** IB1 - Etika v biomedicínskych vedách pre zdravotnícku prax
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 16	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB2/14	**Course name:** IB2 - Právne minimum – súkromnoprávne aspekty
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 16	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB3/14	**Course name:** IB3 - Právne minimum – verejnoprávne aspekty
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 16	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB4/14	**Course name:** IB4 - Projektový manažment
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 20	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB5/14	**Course name:** IB5 - Manažérska ekonomika
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 16	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB6/14	**Course name:** IB6 - Riešenie konfliktných a krízových situácií v školskej praxi
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 16	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB7/14	**Course name:** IB7 - Štatistika pre prax
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 16	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB8/14	**Course name:** IB8 - Environmentálne aspekty záťaže životného prostredia
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 16	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB9/14	**Course name:** IB9 - Medzinárodný certifikát TOEFL
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 17	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KFaDF/IH2/03	**Course name:** Idea Humanitas 2 (General Introduction)

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 semester/trimester of the course: 3.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 4

A	B	C	D	E	FX
75.0	25.0	0.0	0.0	0.0	0.0

Provides: Doc. PhDr. Peter Nezník, CSc.

Date of last modification: 26.01.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ MSI/14	**Course name:** Informatical Mathematics

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 semester/trimester of the course:

Course level: II.

Prerequisities:

Conditions for course completion:
Acquiring the required number of credits in the structure defined by the study plan.

Learning outcomes:
Evaluation of student‘s competences with respect to the profile of the graduate.

Brief outline of the course:
The state exam is organised as a discourse focusing on one subject from the courses ÚINF/KMU1 (equivalently ÚINF/KPI), ÚMV/TKO, ÚINF/VYZ1 and ÚMV/KOA.
1. Arithmetical coding.
2. The use of discret Fourier transform in coding.
3. Test for identifying codes.
4. Using Bernoulli distribution to classify codes.
5. The notion of a nondeterministic algorithm working in polynomial time, NP-completeness.
6. Important NP-complete problems.
7. Eulerian graphs, Chinese Postman Problem.
8. Travelling Salesman Problem – results on complexity, approximation algorithms.

Recommended literature:

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 1

A	B	C	D	E	FX
0.0	100.0	0.0	0.0	0.0	0.0

Provides:

Date of last modification: 11.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/ AIS1/01	**Course name:** Information systems architecture

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: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
Work on project.
Written and oral examination

Learning outcomes:
To provide an overview of the modern methodologies of information system development. To introduce the fundamental principles of conceptual modelling of information systems.

Brief outline of the course:
System, information system, information pyramid. Conceptualisation of information systems. ISO model of the architecture of an information system. Introduction to MDA, software development life cycle based on MDA. Model, metamodel, modelling language. Model transformation and marking models. Entity types. Relationship types. Cardinality constraints. Integrity constraints. Taxonomies. Domain events. Use cases. State transition diagrams.

Recommended literature:
1. http://www.omg.org
2. Ian Sommerville, Software Engineering, Addison-Wesley 2005
3. Anneke Kleppe, Wim Bast, Jos B Warmer, MDA Explained, the Model Driven Architecture, Addison-Wesley 2003
4. Scott Berkun, The Art Of Project Management, O Reilly 2005

Course language:

Notes:

Course assessment
Total number of assessed students: 165

A	B	C	D	E	FX
20.0	30.91	25.45	8.48	11.52	3.64

Provides: doc. RNDr. Gabriel Semanišin, PhD.

Date of last modification: 03.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ TIN/10	**Course name:** Information theory

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: 2 **Per study period:** 28
Course method: present

Number of credits: 4

Recommended semester/trimester of the course: 1., 3.

Course level: II.

Prerequisities:

Conditions for course completion:
A student is evaluated according to an oral examination during which he/she answers two questions chosen by him/her at random, one from the group A and one from the group B (both for 50 points at maximum). Evaluation scale: A ... 90-100 p., B ... 80-89 p., C ... 70-79 p., D ... 60-69 p., E ... 50-59 p., FX ... 0-49 p.

Learning outcomes:
A student gets acquainted with a mathematical attempt to solve some problems of computer science.

Brief outline of the course:
A quantitative characteristic of an information. Entropy of a random variable. Mutual information. Inequalities involving mutual information and entropy, respectively. Typical sequence, typical set. Data compression.

Recommended literature:
T. M. Cover, J. A. Thomas, Elements of Information Theory, Wiley, 1991 (2nd ed. 2006)
T. K. Moon, Information Theory (free online course materials), available at the address http://digitalcommons.usu.edu/ocw_ece/3/

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 84

A	B	C	D	E	FX
38.1	19.05	19.05	13.1	5.95	4.76

Provides: prof. RNDr. Mirko Horňák, CSc.

Date of last modification: 14.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/TZV/10	**Course name:** Lattice theory

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 2 / 1 **Per study period:** 28 / 14
Course method: present

Number of credits: 5

Recommended semester/trimester of the course: 2., 4.

Course level: II.

Prerequisities:

Conditions for course completion:
Awarded according to written and oral examination.

Learning outcomes:
The students learn basic concepts and methods of lattice theory and gain the ability to apply them in various parts of mathematics.

Brief outline of the course:
Ordered sets and lattices. Distributivity and modularity. Ideals and set-theoretical representation. Completeness and completions. 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

Notes:

Course assessment
Total number of assessed students: 17

A	B	C	D	E	FX
47.06	11.76	23.53	17.65	0.0	0.0

Provides: doc. RNDr. Miroslav Ploščica, CSc.

Date of last modification: 14.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/ LAD1/06	**Course name:** Logical aspects of databases

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: 4

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
To understand and to be able to formalize relationships between databases, first order logic and logic programming.

Brief outline of the course:
Relationships between databases, logic and logic programming.

Recommended literature:
Serge Abiteboul, Richard Hull, Victor Vianu: Foundations of Databases. Addison-Wesley 1995, ISBN 0-201-53771-0

Course language:

Notes:

Course assessment
Total number of assessed students: 58

A	B	C	D	E	FX
32.76	17.24	22.41	13.79	12.07	1.72

Provides: doc. RNDr. Stanislav Krajči, PhD.

Date of last modification: 03.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/ MLG/13	**Course name:** Mathematical logic

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 2 / 1 **Per study period:** 28 / 14
Course method: present

Number of credits: 4

Recommended semester/trimester of the course: 1., 3.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
To understand basic notions of predicate logic (logic language, term, formula, axioms, proof, provability, truth, model, syntax and semantics, soundness, completeness), its axiomatic construction, and its influence to the set theory and the database theory.

Brief outline of the course:
Predicate logic – logic language, syntax and semantics, term, formula.
Axioms, proof, provability.
Interpretation, truth, model.
Soundness of the predicate logic.
Boolean algebras.
Syntactic model, completeness of predicate logic.
Inductive structures in general.
Applications of logic in set thoery.
Applications of logic in database systems.

Recommended literature:
1. M. Goldstern, H. Judah: The Incompleteness Phenomenon, A New Course in Mathematical Logic, A K Peters, Wellesley, Massachusetts, 1995
2. S. Abiteboul, R. Hull, V. Vianu: Foundations of databases, Addison-Wesley Publishing Co, 1995
3. http://cs.ics.upjs.sk/~krajci/skola/vyucba/ucebneTexty/logika/logika.pdf (2008, in Slovak)

Course language:

Notes:

Course assessment
Total number of assessed students: 1

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Provides: doc. RNDr. Stanislav Krajči, PhD.
Date of last modification: 03.02.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/TMT/10	**Course name:** Matroid theory

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 semester/trimester of the course: 1., 3.

Course level: II.

Prerequisities:

Conditions for course completion:
A student is evaluated according to an oral examination during which he/she answers two questions chosen by him/her at random, one from the group A (65 points at maximum) and one from the group B (35 points at maximum). Evaluation scale: A ... 90-100 p., B ... 80-89 p., C ... 70-79 p., D ... 60-69 p., E ... 50-59 p., FX ... 0-49 p.

Learning outcomes:
A student gets acquainted with basic notions of matroid theory and possibilities of using matroids in various disciplines of discrete mathematics.

Brief outline of the course:
Independent sets and bases. Properties of rank function. Closure operator. Circuits. Duality in matroids. Hyperplanes.

Recommended literature:
D. J. A. Welsh: Matroid Theory, Academic Press, 1976
J. Oxley, Matroid Theory, Oxford University Press, 2010

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 22

A	B	C	D	E	FX
22.73	22.73	18.18	4.55	22.73	9.09

Provides: prof. RNDr. Mirko Horňák, CSc.

Date of last modification: 14.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ MOB2/10	**Course name:** Molecular Biology

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: 3

Recommended semester/trimester of the course: 2.

Course level: I., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
Familiarize students with the structure, properties and functions of information macromolecules and their work, focusing primarily on the molecular mechanisms of regulation of DNA replication, gene expression and cell cycle.

Brief outline of the course:
Structure and properties of information macromolecules. Molecular structure of chromatin and mitotic and meiotic chromosomes. Dynamics of chromosomes. Replication of chromosomal and extrachromosomal DNA. Repair of DNA damage. Genome of prokaryotic and eukaryotic cells. The human genome. Mobile genetic elements. Transcription and posttranscriptional modifications and editing. Translation and posttranslational modifications. Specific protein degradation. DNA-protein interactions. Regulation of the expression of prokaryotic and eukaryotic genes. Control of the cell cycle.

Recommended literature:
E. Mišúrová:Molekulárna biológia. Učebné texty, PF UPJŠ Košice, 1999
E. Mišúrová, P. Solár: Molekulová biológia. Učebné texty, PF UPJŠ, 2007
S.Rosypal:Úvod do molekulární biologie. Grafex Blansko, Brno,1999
Alberts, D.Bray, J. Lewis a kol.: Molecular Biology of the Cell, Academic Press, London, 1994
D.P. Clark: Molecular Biology, Elsevier Academic Press, London, 2005

Course language:

Notes:

Course assessment
Total number of assessed students: 0

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0

Provides: doc. RNDr. Peter Solár, PhD.

Date of last modification: 13.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚTVŠ/ NJ//13	**Course name:** Naval Yachting
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week:** 36 **Per study period:** 504 **Course method:** present	
Number of credits: 2	
Recommended semester/trimester of the course:	
Course level: I., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 2

abs	n
100.0	0.0

Provides: doc. Mgr. Rastislav Feč, PhD.
Date of last modification: 15.01.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: Dek. PF UPJŠ/PPZ/13	**Course name:** Personality Development and Key Competences for Success on a Labour Market

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 14s
Course method: present

Number of credits: 2

Recommended semester/trimester of the course: 1., 3.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 39

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Provides: RNDr. Peter Stefányi, PhD.

Date of last modification: 17.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ POT/10	**Course name:** Polyhedral theory

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: 2 **Per study period:** 28
Course method: present

Number of credits: 4

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
Oral exam.

Learning outcomes:
Mastered basic knowledge from theory of convex polyhedra and polyhedral maps.

Brief outline of the course:
Classification of surfaces.
Combinatorial and geometric properties of three-dimensional convex polyhedra.
Graphs of polyhedra.
Polyhedral maps. Euler's theorem,
Steinitz' theorem.
Light subgraphs.
Face- and vertex- vectors. Eberhard's theorem.
Groups of symmetries of polyhedra.
Applications in optimization and chemistry.

Recommended literature:
1. B. Grunbaum: Convex polytopes (2nd edition), Springer New York, 2003.
2. S. Jendrol': Light subgraphs of graphs embedded in the plane - a survey, Discrete Math. 313(2013), 406-421.
3. E. Jucovič: Konvexné mnohosteny, Veda Bratislava 1981.
4. G. Ringel, Map color theorem, Springer-Verlag 1974.
2. G.M. Ziegler: Lectures on Polytopes, Springer-Verlag, New York, 1996

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 12

A	B	C	D	E	FX
83.33	0.0	0.0	16.67	0.0	0.0

Provides: prof. RNDr. Stanislav Jendroľ, DrSc.

Date of last modification: 14.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPPaPZ/PPZMg/12	**Course name:** Psychology and Health Psychology (Mgr. study)

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 credits: 4

Recommended semester/trimester of the course: 2.

Course level: I., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 221

A	B	C	D	E	FX
19.91	25.79	25.34	12.67	15.84	0.45

Provides: PhDr. Anna Janovská, PhD., PhDr. Karolína Barinková, PhD., Mgr. Lucia Hricová

Date of last modification: 04.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚGE/ EUG1/10	**Course name:** Regional geography of Europe

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 3 **Per study period:** 42
Course method: present

Number of credits: 3

Recommended semester/trimester of the course: 2.

Course level: I., II.

Prerequisities:

Conditions for course completion:
test plus oral examination

Learning outcomes:

Brief outline of the course:
Pre-history of Europe, development of population, creation of the first state organisations. Development of political map of Europe from the Middle Ages and to present. National, linguistic and religious development of European population and its present distribution. Economy of different regions of Europe – Northern Europe, Southern Europe, Western Europe, postcommunist countries of Central Europe, and Russia.

Recommended literature:
BLOUET, B. W. 2008: The EU & Neighbours. A Geography of Europe in the Modern World. Wiley & Sons.
De BLIJ, H.J., MULLER, P. O. 2008: The World Today. Concepts and Regions in Geography. 3rd edition. Wiley. ISBN 0-470-04681-3
GAJDOŠ, A., MAZÚREK, J. 2004: Geografia štátov Európskej únie. 1. časť, Banská Bystrica: Fakulta prírodných vied, 186 s. ISBN 80-8055-997-X
GAJDOŠ, A., MAZÚREK, J. 2006: Geografia štátov Európskej únie a ostatných štátov Európy. 2. časť, Banská Bystrica: Fakulta prírodných vied, 159 s. ISBN 80-8083-284-6
SKOKAN, L. 2005: Rusko. Geografický přehled. Ústí nad Labem, 215 s.. ISBN 80-7044-647-1
VITURKA, M., ŘEHÁK, S., VANČURA, M. 2004: Regionální geografie Evropy a ČR, Brno: Masarykova univerzita v Brne. 126 s., ISBN 80-210-3504-8

Course language:

Notes:

Course assessment
Total number of assessed students: 153

A	B	C	D	E	FX
21.57	18.3	22.88	16.99	19.61	0.65

Provides: RNDr. Stela Csachová, PhD.
Date of last modification: 11.02.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚTVŠ/ ÚTVŠ/CM/13	**Course name:** Seaside Aerobic Exercise
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week:** 36 **Per study period:** 504 **Course method:** present	
Number of credits: 2	
Recommended semester/trimester of the course:	
Course level: I., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 7	

abs	n
57.14	42.86

Provides: Mgr. Alena Buková, PhD., Mgr. Agata Horbacz, PhD.
Date of last modification: 15.01.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/ SDM1a/07	**Course name:** Seminár on data mining

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 semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
Deepened knowledge and gained overview of the state-of-the-art in the area of data mining.

Brief outline of the course:
The seminar is devoted to study and discussion of recent advances in the field of data mining.

Recommended literature:
Jiawei Han, Micheline Kamber, Jian Pei. Data Mining: Concepts and Techniques. Morgan Kaufmann, ISBN 978-0123814791, 2011.
Pang-Ning Tan, Michael Steinbach, Vipin Kumar. Introduction to Data Mining. Addison-Wesley, ISBN 978-0321321367, 2005.
Ethem Alpazdin. Introduction to Machine Learning, The MIT Press, ISBN 978-0-262-01211-9, 2004.

Course language:

Notes:

Course assessment
Total number of assessed students: 23

A	B	C	D	E	FX
47.83	8.7	21.74	13.04	8.7	0.0

Provides: RNDr. Tomáš Horváth, PhD.

Date of last modification: 03.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ SHM/10	**Course name:** Seminar on history of mathematics
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week:** 2 **Per study period:** 28 **Course method:** present	
Number of credits: 2	
Recommended semester/trimester of the course: 1., 3.	
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 overview of the history of the development of certain mathematical disciplines and selected terms and about parallel between phylogenesis and ontogenesis of mathematical thinking.	
Brief outline of the course: Mathematics in Early Civilizations. Greek Mathematics. Mathematics in the Near and Far East (Arabia, China, India). Medieval European Mathematics. The Renaissance of Mathematics. The Beginning of Modern Mathematics.	
Recommended literature: Burton, D. M.: The History of Mathematics: An Introduction. McGraw−Hill, 2007. Devlin, K.: Jazyk matematiky. Dokořán, 2002 (in czech) Kolman, A.: Dejiny matematiky ve starověku. Academia, Praha, 1968 (in slovak) Juškevič, A. P.: Dejiny matematiky ve středověku. Academia, Praha 1977 (in slovak) Znám,Š. a kol.: Pohľad do dejín matematiky. Alfa, Bratislava, 1986 (in slovak) Konforovič, A.G.: Významné matematické úlohy, SPN Praha, 1989 (in slovak)	
Course language: Slovak	
Notes:	

Course assessment Total number of assessed students: 111					
A	B	C	D	E	FX
80.18	5.41	9.01	2.7	2.7	0.0
Provides: RNDr. Ingrid Semanišinová, PhD.					
Date of last modification: 14.02.2014					
Approved: prof. RNDr. Mirko Horňák, CSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/ DSN1a/04	**Course name:** Seminar on neural networks and stringology

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 semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
To study new knowledges in the area of neural networks and stringology in the seminar form. To follow current state in the area using conference proceedings and special journals.

Brief outline of the course:
Seminar is oriented to an individual work with students which have the diploma theses in the area: neural networks and stringology.

Recommended literature:
Special and research literature connected to Diplomaa theses according to recommendations of supervisor.
Katuščák, D.: Ako písať vysokoškolské a kvalifikačné práce, 2. vydanie Bratislava, 1998
ISO 690: 1987 Documentation - Bibliographic references. Content, form and structure.
ISO 2145: 1978 Documentation - Numbering of divisions and subdivisions in written documents.

Course language:

Notes:

Course assessment
Total number of assessed students: 1

abs	n
100.0	0.0

Provides: doc. RNDr. Gabriela Andrejková, CSc.

Date of last modification: 03.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPPaPZ/SPVKE/07	**Course name:** Social-Psychological Training of Coping with Critical Life Situations

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 semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 101

abs	n	z
97.03	2.97	0.0

Provides:

Date of last modification: 04.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚTVŠ/ TVa/11	**Course name:** Sports Activities I.

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 2 **Per study period:** 28
Course method: present

Number of credits: 2

Recommended semester/trimester of the course: 1.

Course level: I., I.II., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 7160

abs	n	neabs
88.42	7.82	3.76

Provides: PaedDr. Imrich Staško, doc. PhDr. Ivan Šulc, CSc., doc. Mgr. Rastislav Feč, PhD., Mgr. Ivan Matúš, PhD., Mgr. Zuzana Küchelová, Mgr. Peter Bakalár, PhD., doc. PaedDr. Ivan Uher, PhD., PaedDr. Milena Švedová, PhD., Mgr. Agata Horbacz, PhD., Mgr. Marek Valanský, Mgr. Dávid Kaško

Date of last modification: 15.01.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚTVŠ/ TVb/11	**Course name:** Sports Activities II.

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 2 **Per study period:** 28
Course method: present

Number of credits: 2

Recommended semester/trimester of the course: 2.

Course level: I., I.II., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 6364

abs	n	neabs
84.95	11.06	3.99

Provides: PaedDr. Imrich Staško, doc. Mgr. Rastislav Feč, PhD., doc. PhDr. Ivan Šulc, CSc., Mgr. Ivan Matúš, PhD., Mgr. Zuzana Küchelová, doc. PaedDr. Ivan Uher, PhD., Mgr. Peter Bakalár, PhD., PaedDr. Milena Švedová, PhD., Mgr. Agata Horbacz, PhD., Mgr. Marek Valanský, Mgr. Dávid Kaško

Date of last modification: 15.01.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚTVŠ/ TVc/11	**Course name:** Sports Activities III.

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 2 **Per study period:** 28
Course method: present

Number of credits: 2

Recommended semester/trimester of the course: 3.

Course level: I., I.II., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 4191

abs	n	neabs
89.91	4.72	5.37

Provides: PaedDr. Imrich Staško, doc. Mgr. Rastislav Feč, PhD., doc. PhDr. Ivan Šulc, CSc., Mgr. Ivan Matúš, PhD., Mgr. Zuzana Küchelová, doc. PaedDr. Ivan Uher, PhD., PaedDr. Milena Švedová, PhD., Mgr. Peter Bakalár, PhD., Mgr. Agata Horbacz, PhD., Mgr. Marek Valanský, Mgr. Dávid Kaško

Date of last modification: 15.01.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚTVŠ/ TVd/11	**Course name:** Sports Activities IV.

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 2 **Per study period:** 28
Course method: present

Number of credits: 2

Recommended semester/trimester of the course: 4.

Course level: I., I.II., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 3363

abs	n	neabs
86.14	6.78	7.08

Provides: PaedDr. Imrich Staško, doc. Mgr. Rastislav Feč, PhD., doc. PhDr. Ivan Šulc, CSc., Mgr. Ivan Matúš, PhD., Mgr. Zuzana Küchelová, PaedDr. Milena Švedová, PhD., Mgr. Peter Bakalár, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Agata Horbacz, PhD., Mgr. Marek Valanský, Mgr. Dávid Kaško

Date of last modification: 15.01.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/SEV/10	**Course name:** Structure and Evolution of the Universe

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: 3

Recommended semester/trimester of the course: 2.

Course level: I., II.

Prerequisities:

Conditions for course completion:
Test; seminar paper.
Oral exam with preparation; 3 questions within the curriculum presented during the course.

Learning outcomes:
Become acquainted with basic knowledge about the structure and evolution of the universe.

Brief outline of the course:
The stars, their basic properties, structure and evolution. Structure and distribution of matter in the universe. Cosmological theories, formation, evolution and future of the universe.

Recommended literature:
1. Carroll, B. W., Ostlie, D. A., An Introduction to Modern Astrophysics, Addison-Wesley Publishing Company, Reading, Massachusetts, 1996.
2. Contopoulos, D. Kotsakis, Cosmology, the structure and evolution of the Universe, Springer, 1984
3. Narlikar, J.V., An Introduction to Cosmology, Cambridge University Press, Cambridge, 2002

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 100

A	B	C	D	E	FX
24.0	33.0	16.0	16.0	11.0	0.0

Provides: doc. RNDr. Rudolf Gális, PhD.

Date of last modification: 31.01.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ SVK/10	**Course name:** Students scientific conference

Course type, scope and the method:
Course type:
Recommended course-load (hours):
Per week: Per study period:
Course method: present

Number of credits: 4

Recommended semester/trimester of the course:

Course level: I., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
Individual scientific work of students. Publishing of obtained results in a written form and as a public presentation.

Brief outline of the course:

Recommended literature:
With respect to the research problematics (article in journals, books).

Course language:
Slovak or English

Notes:

Course assessment
Total number of assessed students: 47

A	B	C	D	E	FX
97.87	2.13	0.0	0.0	0.0	0.0

Provides:

Date of last modification: 14.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚTVŠ/ LKSp//13	**Course name:** Summer Course-Rafting of TISA River
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week:** 36 **Per study period:** 504 **Course method:** present	
Number of credits: 2	
Recommended semester/trimester of the course:	
Course level: I., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 63

abs	n
41.27	58.73

Provides: Mgr. Peter Bakalár, PhD.
Date of last modification: 15.01.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚTVŠ/ KP/12	**Course name:** Survival Course
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week:** 36 **Per study period:** 504 **Course method:** present	
Number of credits: 2	
Recommended semester/trimester of the course:	
Course level: I., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 185

abs	n
41.62	58.38

Provides: Mgr. Marek Valanský
Date of last modification: 15.01.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPPaPZ/UPR/03	**Course name:** The Art of Aiding by Verbal Exchange

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 semester/trimester of the course: 4.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 47

A	B	C	D	E	FX
87.23	4.26	2.13	2.13	0.0	4.26

Provides: Mgr. Ondrej Kalina, PhD.

Date of last modification: 04.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/TKO/10	**Course name:** Theory of codes

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: 6

Recommended semester/trimester of the course: 1., 3.

Course level: II.

Prerequisities:

Conditions for course completion:
A student is evaluated according to an oral examination during which he/she answers two questions chosen by him/her at random, one from the group A and one from the group B (both for 50 points at maximum). Evaluation scale: A ... 90-100 p., B ... 80-89 p., C ... 70-79 p., D ... 60-69 p., E ... 50-59 p., FX ... 0-49 p.

Learning outcomes:
A student gets acquainted with basic principles and theoretical bases of text coding and possibilities of their application.

Brief outline of the course:
Monoids. Basic notions of theory of codes. Examples of codes. Important classes of codes. Maximal codes. Submonoids generated by codes. Stable submonoids. Group codes. Free hull of a set of words. Test for recognising codes. Measure of a code. Bernoulli distribution. Dyck code. Complete sets in monoids. Thin codes. Composition of codes. Indecomposable codes.

Recommended literature:
J. Berstel and D. Perrin, Theory of Codes, Academic Press, 1985

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 41

A	B	C	D	E	FX
21.95	12.2	12.2	19.51	21.95	12.2

Provides: prof. RNDr. Mirko Horňák, CSc.

Date of last modification: 14.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/UAL/10	**Course name:** Universal algebra

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 semester/trimester of the course: 1., 3.

Course level: II.

Prerequisities:

Conditions for course completion:
According to results of the exam (written+oral).

Learning outcomes:
To obtain basic knowledge from universal algebra and to be able to apply it in concrete situations.

Brief outline of the course:
Algebraic structures. Homomorphisms and congruences. Direct and subdirect products. Terms. Free algebras. Birkhoff theorems about varieties.

Recommended literature:
S.Burris, H.P.Sankappanavar: A Course in Universal Algebra. Springer-Verlag, 1981.
B. Jónsson: Topics in universal algebra, Springer-Verlag 1972.
G. Grätzer: Universal Algebra, 2nd edition, Springer Verlag, 1979.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 30

A	B	C	D	E	FX
30.0	26.67	23.33	6.67	6.67	6.67

Provides: prof. RNDr. Danica Studenovská, CSc.

Date of last modification: 14.02.2014

Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚTVŠ/ ZKLS//13	**Course name:** Winter Ski Training Course
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week:** 36 **Per study period:** 504 **Course method:** present	
Number of credits: 2	
Recommended semester/trimester of the course:	
Course level: I., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 59

abs	n
25.42	74.58

Provides: PaedDr. Imrich Staško, doc. PhDr. Ivan Šulc, CSc.
Date of last modification: 15.01.2014
Approved: prof. RNDr. Mirko Horňák, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: D PrávF/ZP2/11	**Course name:** Základy práva pre prirodovedcov II
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:	
Course level: II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 95	

abs	n
97.89	2.11

Provides:
Date of last modification: 14.01.2014
Approved: prof. RNDr. Mirko Horňák, CSc.