Course descriptions

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COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-AIN-235/15	**Course title:** Algorithms of Artificial Intelligence in Robotics

Educational activities:
  Type of activities: lecture / laboratory practicals
  Number of hours:
    per week: 2 / 2 **per level/semester:** 28 / 28
  Form of the course: on-site learning

Number of credits: 6

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:
exercises, project, and final test
A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 50/50

Learning outcomes:
Students will understand methods of Artificial Intelligence that are useful for intelligent robotic systems. They will have a practical hands-on experience with programming real and simulated robotic intelligent systems.

Class syllabus:
Perception and sensor systems, software robotic architectures, space representation and inference, navigation and localization, probabilistic approaches, simulation, artificial life evolutionary algorithms and neural networks in robotics, applications.

Recommended literature:
The robotics primer / Maja J. Matarić. Cambridge, Mass. : MIT Press, 2007
Invitation to topological robotics / Michael Farber. Zürich : European Mathematical Society, 2008

Languages necessary to complete the course:
slovak, english

Notes:

Past grade distribution
Total number of evaluated students: 10

A	B	C	D	E	FX
10,0	20,0	60,0	10,0	0,0	0,0

Lecturers: Mgr. Pavel Petrovič, PhD.

Last change: 24.10.2016

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-AIN-137/15	**Course title:** Artificial Intelligence

Educational activities:
 Type of activities: lecture / practicals
 Number of hours:
  per week: 2 / 2 **per level/semester:** 28 / 28
 Form of the course: on-site learning

Number of credits: 6

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:
projects, written exam
Scale: A 95%, B 88%, C 79%, D 68%, E 55%
Scale of assessment (preliminary/final): 30/70

Learning outcomes:
After completing the course, students should have a good overview of the theoretical methods used in artificial intelligence. They should be able to use these methods in practice in programming intelligent systems, they should be able to enrich and creatively exploit.

Class syllabus:
1. Agents, types of agents, agent properties. Browse - informed strategies. 2. Search - informed strategies. Games. 3. Logical agents, propositional and predicate database knowledge. 4. Inference of the predicate in the knowledge base. 5. Planning. 6. likelihood naive Bayesian classifier, Bayesian network. 7. Bayesian network, exact and approximate inference in Bayesian network. 8. Using Bayesian networks in artificial intelligence. Introduction to the use of probability theory in games. 9. Monte Carlo method in games.
10. The classic theory of time series, time series models. 11. Use of Bayesian networks inference in time series with uncertainty. 12. Markov priocesy, Kalman filter, the use of artificial intelligence. 13. Decision Theory: simple and complex decision-making, decision trees.

Recommended literature:
Artificial intelligence : A modern approach / Stuart J. Russell, Peter Norvig. Englewood Cliffs : Prentice-Hall, 1995
Artificial intelligence a new synthesis / Nils J. Nilsson. San Francisco : Morgan Kaufmann, 1998

Languages necessary to complete the course:

Notes:

Past grade distribution					
Total number of evaluated students: 39					
A	B	C	D	E	FX
35,9	15,38	15,38	15,38	15,38	2,56

Lecturers: doc. RNDr. Mária Markošová, PhD.

Last change: 22.09.2017

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-IKV-191/17	**Course title:** Cognitive Biology

Educational activities:
  Type of activities: lecture / seminar
  Number of hours:
    per week: 2 / 1 **per level/semester:** 28 / 14
  Form of the course: on-site learning

Number of credits: 5

Recommended semester: 2., 4.

Educational level: II.

Prerequisites:

Course requirements:
The student is required to prepare 3 home assignments on specialized topics (reading and understanding of the scientific texts in English); presentation and discussion of the prepared topic in English.
Scale of assessment (preliminary/final): Weights: 25% each presentation, 25% active involvement during course. □Grades: A > 90%, B > 80%, C > 70%, D > 60%, E > 52% marks.

Learning outcomes:
The course will provide a comprehensive overview of principles of cognition. The scientific concept draws from the assumption that cognition is a natural biological phenomenon and can thus be approached by comparative studies of different types of organisms assuming a meaningful degree of continuity among them. The main objective is the formulation of substantiated interrelation of cognition and evolution. Starting with a brief outline of the history of the field, students will then be familiarized with the underlying physicochemical and electrical principles of cognitive processes, cell-cell communication, and molecular cognition. Subsequently, students will tackle the basics of homologous processes in increasingly complex systems (from simple model systems to humans and their socio-physical environment). The challenge for the students will be the high interdisciplinarity of the research area of cognitive biology that requires cross-disciplinary thinking and a multiscale mindset.

Class syllabus:
1. A Brief History of Cognitive Biology □Goodwin, Piaget, Kuhn, Riedl, Kovac, Lyon, Keijzer, Godfrey-Smith
2. The Underlying Principles of Cognitive Biology. □Kovac's fundamental principles; Physicochemical Groundwork (Self-Organization; Thermodynamics vs. Kinetics)
3. The Basal Level of Cognition I □Molecular Mechanisms: From Signaling in Single Cell Organisms to Action Potential
4. The Basal Level of Cognition II □Concept of Information; Biosemiotics; Chemotons & Autocatalytic Sets
5. The Medial Level of Cognition□Cellular Communication, Neural Networks; Network Information Processing

6. The Apical Level of Cognition I□Organismal Behavior (Action [Doing/Knowing], Decision Making); "Rationality"; Goal-directedness
7. The Apical Level of Cognition II□Emotions; Mechanisms for Learning & Memory; Associative Learning Paradigm; Brain Modularity; Onticity
8. The Ontic Level of Cognition: Developmental Processes I □Developmental Genetics; Gene Regulatory Networks; Epigenetic Landscape; Principles of Homology/Analogy; Convergent Evolution
9. The Ontic Level of Cognition: Developmental Processes II □Generative Entrenchment & Ratchet Effects; Developmental Constraints; Hierarchical Processing
10. The Supra-Individual Level of Cognition I□From Eliminative Reductionism to Organicism; Evolutionary Epistemology; Teleonomy / Teleology
11. The Supra-Individual Level of Cognition II□Social Cognition: Beyond the Nature-Nurture Divide; Cultural Evolution; □Environmental Complexity; Umwelt; Niche Construction
12. The Supra-Individual Level of Cognition III□Evolution of Complex Systems; The Extended Evolutionary Synthesis; Major Transitions in Evolution
13. Resumé & Outlook□

Recommended literature:
KováčL. (2015) Closing Human Evolution. Springer.
Kováč L. (2000) Fundamental principles of cognitive biology. Evolution and Cognition, vol. 6, pp. 51-69.
Baluška F., Mansuso S. (2009) Deep evolutionary origins of neurobiology. Communicative & Integrative Biology, vol. 2, no. 1, pp. 60-65
– scientific articles on individual topics

Languages necessary to complete the course:

Notes:
Minimum number of 4 enrolled students.

Past grade distribution
Total number of evaluated students: 4

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: Priv.-Doz. Dr. Isabella Sarto-Jackson, PhD.

Last change: 05.02.2018

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-IKV-233/15	**Course title:** Cognitive Laboratory

Educational activities:
  Type of activities: course
  Number of hours:
    per week: 3 **per level/semester:** 42
  Form of the course: on-site learning

Number of credits: 4

Recommended semester: 3.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KAI/2-IKV-233/00

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 4

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: doc. PhDr. Ján Rybár, PhD.

Last change: 23.09.2017

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-IKV-113/00	**Course title:** Cognitive Psychology

Educational activities:
 Type of activities: lecture / seminar
 Number of hours:
  per week: 2 / 2 **per level/semester:** 28 / 28
 Form of the course: on-site learning

Number of credits: 5

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
 Mind architecture: attention, perception, imagination, memory
 Nature of language and language acquisition
 Psychometric measures of cognition
 Cognitive development and its stages
 Natural and artificial intelligence

Recommended literature:
 Robert J. Sternberg: Kognitívni psychologie. Portal, Praha 2002
 John R. Andersen: Cognitive Psychology and Its Implications. Worth Publishers, New York 2000
 J. Rybár, Ľ. Beňušková, V. Kvasnička (ed.): Kognitívne vedy. Kalligram, Bratislava 2002.

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 114

A	B	C	D	E	FX
31,58	43,86	19,3	2,63	0,0	2,63

Lecturers: Mgr. Martin Marko, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-IKV-187/16	**Course title:** Cognitive Science Seminar

Educational activities:
  Type of activities: lecture
  Number of hours:
    per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KAI/2-IKV-187/15

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 32

A	B	C	D	E	FX
25,0	34,38	18,75	12,5	6,25	3,13

Lecturers: prof. Ing. Igor Farkaš, Dr.

Last change: 23.09.2017

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-IKV-190/16	**Course title:** Cognitive Science and Artificial Intelligence Seminar

Educational activities:
  Type of activities: lecture
  Number of hours:
   per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 1

Recommended semester: 2., 4.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 1

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: prof. Ing. Igor Farkaš, Dr.

Last change: 23.09.2017

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-IKV-232/00	**Course title:** Cognitive Semantics and Cognitive Theory of Representation

Educational activities:
 Type of activities: lecture / seminar
 Number of hours:
  per week: 2 / 2 **per level/semester:** 28 / 28
 Form of the course: on-site learning

Number of credits: 5

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:
 Scale of assessment (preliminary/final): 70/30

Learning outcomes:

Class syllabus:
 Basic concepts and problems: semiotic triangle (Pierce), language game (Wittgenstein), referential
 indeterminacy (Quine), symbol grounding problem (Harnad) and more.
 Semiotics and enactive approach.
 Meanings and representations in preverbal cognitive systems.
 Categorization, prototype theory (Rosch), idealized cognitive models (Lakoff).
 Conceptual spaces (Gärdenfors).
 Syntax, semantics and pragmatics.
 Meanings in brain.
 Constructivist/developmental approach.

Recommended literature:
 Gärdenfors, P.: Conceptual Spaces, MIT Press, 2000.
 Lakoff, G.: Women, Fire and Dangerous Things, The University of Chicago Press, 1987.
 Feldman, J.: From Molecule to Metaphor, MIT Press, 2006.
 articles on the course webpage

Languages necessary to complete the course:
 English

Notes:

Past grade distribution
 Total number of evaluated students: 85

A	B	C	D	E	FX
58,82	16,47	12,94	2,35	5,88	3,53

Lecturers: doc. RNDr. Martin Takáč, PhD.

Last change: 24.10.2016

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-IKV-168/15	**Course title:** Cognitive science, technology and culture

Educational activities:
  Type of activities: seminar
  Number of hours:
    per week: 3 **per level/semester:** 42
  Form of the course: on-site learning

Number of credits: 5

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:
 Semestral evaluation: active participation
 Exam: project presentation
 Weight of the exam during assessment: 60%
 To achiev an A, 90% is needed, for B at least 80%, for C 70%, for D, 60% and for an E, at least 50% of overal assessment.

Learning outcomes:
 Course provides introductionary insight into relationship between technological inovations onto human behaviour, culture and society.

Class syllabus:
 Internet of things, it usefulness and threats
 Assistant AI and its place in future society
 Enhancements and human rights and the right to change self and others
 Artificial minds
 Hybridization between species and between AI and organic minds
 Future of minds and trans-humanism
 Artificial emotional intelligence
 An after human era

Recommended literature:
 Embodiment and cognitive science / Raymond W. Gibbs, Jr.. Cambridge : Cambridge University Press, 2006
 Bel, G., Gemmell J. Total Recall, How the e-Memory Revolution will change everything, New York, Dutton, 2009

Languages necessary to complete the course:

Notes:

Past grade distribution					
Total number of evaluated students: 17					
A	B	C	D	E	FX
64,71	17,65	5,88	0,0	11,76	0,0

Lecturers: Mgr. Tomáš Gál, PhD.

Last change: 19.02.2018

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-UXX-150/00	**Course title:** Communication Training (Seminar)

Educational activities:
  Type of activities: seminar
  Number of hours:
    per week: 3 **per level/semester:** 42
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: II., N

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 28

A	B	C	D	E	FX
85,71	3,57	7,14	0,0	3,57	0,0

Lecturers: doc. RNDr. Martin Takáč, PhD.

Last change: 23.09.2017

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAI/2-AIN-154/12	Course title: Complex Networks

Educational activities:
  Type of activities: seminar
  Number of hours:
    per week: 2 per level/semester: 28
  Form of the course: on-site learning

Number of credits: 3

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:
 Scale of assessment (preliminary/final): 70/30

Learning outcomes:

Class syllabus:
 1. Case studies (internet, social networks, functional brain networks..). Náther
 2. Graph theory and complex networks. Markošová
 3. Lattice and random networks (clustering, shortest distance, centrality....), Eordes, Renyiho theory. Markošová
 4. Small world networks – models, navigation on nets, case study. Čajági
 5. Scale free networks 1 – Barabási – Albert model, preferential node attachment, case study, variants of BA model. Náther
 6. Tools for network analysis (NWB, Navigator). Čajági
 7. Scale free networks 2 - Vasquezo model, surfers na network. Markošová
 8. Hierarchy in networks, Ravasz Barabasi model, surfers on networks and hierarchy, case study. Náther
 9. Socal networks, collaboration networks, cfommunities, clusters, models. Čajági
 10. Epidemic networks, netwrks witch synchronicity. Čajági
 11. Vizualization of networks, tools, layouts. Náther
 12. Vulnerability, stability of nets, risk analysis. Čajági
 13. Applications of the complex networks theory (in computer science informatike, biology, sociology, linguisics...). Markošová
 14. Student projects. Náther

Recommended literature:
 D. J. Watts, Small worlds, Princeton university press, Princeton USA, 2004
 M.E.J. Newman, The Structure and Function of Complex Networks, SIAM Review 2003
 A. Barat, M. Barthelemy, A. Vespigniani, Dynamical Processes on Complex Networks,
 Cambridge University Press New York, 2008, ISBN 0521879507

Languages necessary to complete the course:

Notes:

Past grade distribution					
Total number of evaluated students: 27					
A	B	C	D	E	FX
29,63	44,44	18,52	7,41	0,0	0,0

Lecturers: doc. RNDr. Mária Markošová, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAI/2-IKV-136/15	**Course title:** Computational Cognitive Neuroscience

Educational activities:
  Type of activities: lecture / practicals
  Number of hours:
    per week: 2 / 2 **per level/semester:** 28 / 28
  Form of the course: on-site learning

Number of credits: 6

Recommended semester: 2.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KAI/2-IKV-136/10

Course requirements:
 During the semester: 2 presentations and a project
 Final exam: written and oral.
 Approx. evaluation scale: A 90%, B 80%, C 70%, D 60%, E 50%

Learning outcomes:
Computational cognitive neuroscience relies upon theories of cognitive science coupled with neuroscience and computational modeling. In this course, we will study neurobiological processes that underlie cognition by means of computational models. We will address the questions of how cognitive processes are affected and controlled by neural circuits in the brain. Modeling of some basic mechanisms of cognitive functions will be done using the Emergent simulator.

Class syllabus:
 1. Introduction to computational cognitive neuroscience. Main concepts in modeling.
 2. Spiking neurons models. Biology of individual neuron and its implementation in Emergent.
 3. Structure of cortical networks, localist and distributed representations, excitation and inhibion of neurons.
 4. Biological mechanism of memory and learning, long-term potentiation and depression of synaptic efficacy.
 5. Self-organization, error-driven learning, combination of both.
 6. Functional organization of the brain. Overview of brain areas.
 7. Visual perception.
 8. Attention, bottom-up and top-down mechanisms. Spatial neglect.
 9. Motor control and reinforcement learning
 10. Memory, memory types, memory phenomena
 11. Language.
 12. Agency, theory of mind, self-awareness.

Recommended literature:
 O'Reilly, R.C., Munakata, Y., Frank, M.J., Hazy, T.E., and Contributors (2012). Computational Cognitive Neuroscience. Wiki Book, 2nd Edition.

http://ccnbook.colorado.edu/

Languages necessary to complete the course:
English

Notes:

Past grade distribution
Total number of evaluated students: 78

A	B	C	D	E	FX
19,23	20,51	21,79	23,08	3,85	11,54

Lecturers: RNDr. Kristína Malinovská, PhD.

Last change: 19.02.2018

Approved by: prof. Ing. Igor Farkaš, Dr.

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAI/2-IKV-954/15	**Course title:** Computational Methods in Cognitive Science
Number of credits: 2	
Educational level: II.	
State exam syllabus:	
Last change: 02.06.2015	
Approved by: prof. Ing. Igor Farkaš, Dr.	

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAI/2-IKV-188/16	**Course title:** Computational Neuroscience

Educational activities:
 Type of activities: lecture / practicals
 Number of hours:
  per week: 2 / 1 **per level/semester:** 28 / 14
 Form of the course: on-site learning

Number of credits: 5

Recommended semester: 2., 4.

Educational level: II.

Prerequisites:

Course requirements:
Assessment: home assignments and final exam
Student is required to achieve at least 50% of internal marks during semester in order to be admitted to sit the final exam . Final exam has a written form with oral consultation.
Weight of the exam: 40%

Learning outcomes:
The course will provide students with the basics of computational neuroscience including the basics of the programming metalanguage of the software NEURON, which is used e.g. in the Blue Brain project. The students will learn theoretical and practical principles of application of informatics to the study of processes in neurons and small neural networks. At the same time, they will become familiar with the way of critical thinking, reasoning and problem solving in this research area.

Class syllabus:
- Principles of computational modeling of dynamic systems
- Theory of action potentials in neurons and their implementation in NEURON
- Theory of signal processing in dendrites and implementation of dendrites in NEURON
- Theory of biological neural networks and connecting the neurons in NEURON
- Theory of synaptic transmission and implementation of synapses in NEURON
- Implementation of ion channels in NEURON
- Theories of coding of information in neural networks

Recommended literature:
1 - O'Reilly RC, Munakata Z, Frank MJ, Hazy TE and Contributors (2012) Computational Cognitive Neuroscience. Wiki Book, 2nd Edition https://grey.colorado.edu/CompCogNeuro/index.php/CCNBook/
2 – Mingus A and O'Reilly RC (2008) The emergent neural modeling system. Neural Networks 21(8) 1146-1152. (https://grey.colorado.edu/emergent/index.php/Using_emergent)
3 – scientific review articles on individual topics

Languages necessary to complete the course:
Slovak or English

Notes:

minimal number of enrolled students = 4

Past grade distribution
Total number of evaluated students: 0

A	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0

Lecturers: prof. RNDr. Ľubica Beňušková, PhD.

Last change: 23.09.2017

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KI/2-INF-188/17	**Course title:** Current Approaches in Machine Learning

Educational activities:
  Type of activities: course
  Number of hours:
   per week: 4 **per level/semester:** 56
  Form of the course: on-site learning

Number of credits: 4
Recommended semester: 2., 4.
Educational level: II.
Prerequisites:
Course requirements:
Learning outcomes:
Class syllabus:
Recommended literature:
Languages necessary to complete the course:
Notes:

Past grade distribution
Total number of evaluated students: 0

A	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0

Lecturers: Mgr. Vladimír Boža, PhD.
Last change: 12.01.2018
Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-IKV-141/00	**Course title:** Current Trends in Cognitive Psychology

Educational activities:
 Type of activities: lecture / seminar
 Number of hours:
  per week: 2 / 1 **per level/semester:** 28 / 14
 Form of the course: on-site learning

Number of credits: 5

Recommended semester: 2.

Educational level: II.

Prerequisites:

Recommended prerequisites:
 2-IKV-111 Introduction to Psychology

Course requirements:
 Semestral evaluation: active participation
 Exam: project presentation
 Weight of the exam during assessment: 60%
 To achiev an A, 90% is needed, for B at least 80%, for C 70%, for D, 60% and for an E, at least 50% of overal assessment.

Learning outcomes:
 Course provides introductionary insight into relationship between technological inovations onto human behaviour, culture and society.

Class syllabus:
 Relation between psychology and ethology
 Approaches to study reasoning
 Intelligence and decision making
 Cognitive illusions and biases
 Approaches to study emotionality
 Research of memory
 Cognitive enhancements

Recommended literature:
 KAHNEMAN, D. (2011) Thinking, fast and slow. Macmillan.
 GOLDBERG, E. (2009): The New Executive Brain, Oxford, Oxford University Press
 STAINTON, R. J. (2005) Contemporary debates in Cognitive Science. Oxford, Blackwell
 STERNBERG, R. J., STERNBERG, K. (2011) Cognitive Psychology. Belmont, Wadsworth (6ed)

Languages necessary to complete the course:

Notes:

Past grade distribution Total number of evaluated students: 74					
A	B	C	D	E	FX
71,62	16,22	9,46	1,35	1,35	0,0

Lecturers: Mgr. Tomáš Gál, PhD.

Last change: 19.02.2018

Approved by: prof. Ing. Igor Farkaš, Dr.

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAI/2-IKV-991/15	**Course title:** Diploma Thesis
Number of credits: 16	
Educational level: II.	
State exam syllabus:	
Last change: 02.06.2015	
Approved by: prof. Ing. Igor Farkaš, Dr.	

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-IKV-921/15	**Course title:** Diploma Thesis Seminar

Educational activities:
  Type of activities: seminar
  Number of hours:
    per week: 3 **per level/semester:** 42
  Form of the course: on-site learning

Number of credits: 4

Recommended semester: 4.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 100

A	B	C	D	E	FX
45,0	19,0	21,0	5,0	2,0	8,0

Lecturers: prof. Ing. Igor Farkaš, Dr., doc. PhDr. Ján Rybár, PhD.

Last change: 23.09.2017

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-ERA-010/15	**Course title:** Elective Mobility Course

Educational activities:
  Type of activities:
  Number of hours:
   per week: per level/semester:
  Form of the course: on-site learning

Number of credits: 5

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 7

A	B	C	D	E	FX
71,43	0,0	0,0	14,29	0,0	14,29

Lecturers:

Last change:

Approved by: prof. Ing. Igor Farkaš, Dr.

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAI/2-IKV-955/15	**Course title:** Empirical Methods in Cognitive Science
Number of credits: 2	
Educational level: II.	
State exam syllabus:	
Last change: 02.06.2015	
Approved by: prof. Ing. Igor Farkaš, Dr.	

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-IKV-116/15	**Course title:** Empirical Research Methodology

Educational activities:
  Type of activities: lecture / seminar
  Number of hours:
    per week: 2 / 1 **per level/semester:** 28 / 14
  Form of the course: on-site learning

Number of credits: 4

Recommended semester: 1.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KAI/2-IKV-116/15

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 31

A	B	C	D	E	FX
22,58	32,26	25,81	9,68	6,45	3,23

Lecturers: Mgr. Jakub Šrol

Last change: 23.09.2017

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-233/13	**Course title:** English Conversation Course (1)

Educational activities:
  Type of activities: practicals
  Number of hours:
    per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1., 3.

Educational level: I., II.

Prerequisites:

Course requirements:
 Scale of assessment (preliminary/final): 100/0

Learning outcomes:

Class syllabus:
 The content of the course is general English.
 The language level is B2/C1 (Upper-Intermediate/Lower Advanced).

Recommended literature:
 Selection of materials from Inside Out Upper-Intermediate, Cutting Edge Upper-Intermediate,
 New English File Upper-Intermediate, British and American newspapers and journals
 Recordings: authentic and semi-authentic (source: BBC, CNN, coursebook recordings)

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 135

A	B	C	D	E	FX
58,52	18,52	9,63	2,22	1,48	9,63

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-234/13	**Course title:** English Conversation Course (2)

Educational activities:
  Type of activities: practicals
  Number of hours:
    per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2., 4.

Educational level: I., II.

Prerequisites:

Course requirements:
 Scale of assessment (preliminary/final): 100/0

Learning outcomes:

Class syllabus:
 The course is a follow-up to the Conversation Course in English (1). The content of the course is general English.
 The language level is B2/C1 (Upper-Intermediate/Lower Advanced).

Recommended literature:
 Selection of materials from Inside Out Upper-Intermediate, Cutting Edge Upper-Intermediate, New English File Upper-Intermediate, British and American newspapers and journals
 Recordings: authentic and semi-authentic (source: BBC, CNN, coursebook recordings)

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 62

A	B	C	D	E	FX
67,74	19,35	4,84	0,0	0,0	8,06

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-AIN-181/00	**Course title:** Evolutionary Algorithms

Educational activities:
  Type of activities: course
  Number of hours:
    per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 3

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 61

A	B	C	D	E	FX
27,87	19,67	26,23	14,75	6,56	4,92

Lecturers: doc. RNDr. Mária Markošová, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-141/00	**Course title:** French Language (1)

Educational activities:
  Type of activities: practicals
  Number of hours:
   per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
French language is taught at two levels: beginner and intermediate. Students opt for one of them depending on whether they wish to obtain the fundamentals of the language or wish to maintain and/or improve previous knowledge of French.

Recommended literature:
Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 374

A	B	C	D	E	FX
39,84	22,19	21,66	10,16	2,14	4,01

Lecturers: Mgr. Pavel Vilášek, Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-142/00	**Course title:** French Language (2)

Educational activities:
  Type of activities: practicals
  Number of hours:
   per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
 The subject continues the program of French language (1) and provides courses of essential and intermediate French language.

Recommended literature:
 Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2
 Blažena Srncová: Učebnica francúzštiny pre študentov Matematicko-fyzikálnej fakulty , UK 1983
 Kolektív Lingea, s.r.o.: Slovensko-francúzsky hovorník, Bratislava 2008

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 237

A	B	C	D	E	FX
34,18	27,85	21,52	11,39	2,53	2,53

Lecturers: Mgr. Pavel Vilášek, Mgr. Ľubomíra Koževhubová

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-241/00	**Course title:** French Language (3)

Educational activities:
  Type of activities: practicals
  Number of hours:
   per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
 The subject provides a course of intermediate French language, covering not only general, but also technical language.

Recommended literature:
 Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2
 Blažena Srncová: Učebnica francúzštiny pre študentov Matematicko-fyzikálnej fakulty , UK 1983
 Kolektív Lingea, s.r.o.: Slovensko-francúzsky hovorník, Bratislava 2008

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 93

A	B	C	D	E	FX
33,33	30,11	23,66	7,53	1,08	4,3

Lecturers: Mgr. Pavel Vilášek, Mgr. Ľubomíra Koževhubová

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-242/00	**Course title:** French Language (4)

Educational activities:
  Type of activities: practicals
  Number of hours:
    per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
 The subject provides a course of intermediate French covering not only general, but also technical
 French language.

Recommended literature:
 Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN
 80-08-00431-2
 Blažena Srncová: Učebnica francúzštiny pre študentov Matematicko-fyzikálnej fakulty , UK
 1983
 Kolektív Lingea, s.r.o.: Slovensko-francúzsky hovorník, Bratislava 2008
 Zarha Lahmidi: Sciences-techniques.com, ISBN 209-0331186-0, CLE international, 2005

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 63

A	B	C	D	E	FX
31,75	38,1	20,63	3,17	1,59	4,76

Lecturers: Mgr. Pavel Vilášek, Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-IKV-105/15	**Course title:** Fundamentals of Programming

Educational activities:
  Type of activities: lecture / practicals
  Number of hours:
   per week: 1 / 2 **per level/semester:** 14 / 28
  Form of the course: on-site learning

Number of credits: 4

Recommended semester: 1.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KAI/2-IKV-105/10

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 43

A	B	C	D	E	FX
39,53	13,95	9,3	13,95	13,95	9,3

Lecturers: Mgr. Ing. Matúš Tuna

Last change: 23.09.2017

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-151/00	**Course title:** German Language (1)

Educational activities:
  Type of activities: practicals
  Number of hours:
   per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
 German language is taught at three levels: beginner, intermediate and advanced. Students opt for one of them depending on whether they need to learn the fundamentals or maintain and/or improve their previous knowledge.

Recommended literature:
 Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe.

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 648

A	B	C	D	E	FX
31,94	29,17	21,3	10,03	2,93	4,63

Lecturers: Mgr. Pavel Vilášek, Mgr. Alexandra Maďarová

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-152/00	**Course title:** German Language (2)

Educational activities:
  Type of activities: practicals
  Number of hours:
    per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
 The course continues the program of German language (1). German language is taught at three levels: beginner, intermediate, advanced.

Recommended literature:
 Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe.

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 408

A	B	C	D	E	FX
29,17	22,06	23,77	14,95	3,68	6,37

Lecturers: Mgr. Pavel Vilášek, Mgr. Alexandra Maďarová

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-251/00	**Course title:** German Language (3)

Educational activities:
  Type of activities: practicals
  Number of hours:
   per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
 The subject continues the program of German language (2). It provides a course of intermediate and advanced German language.

Recommended literature:
 Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe.
 Aus moderner Technik und Naturwissenschaft, 1999, Max Hueber Verlag, D-85737, ISBN 3-19-001629-1

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 148

A	B	C	D	E	FX
38,51	27,03	22,3	6,76	2,7	2,7

Lecturers: Mgr. Pavel Vilášek, Mgr. Alexandra Maďarová

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-252/00	**Course title:** German Language (4)

Educational activities:
  Type of activities: practicals
  Number of hours:
    per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
 The subject continues the program of German language (3). It provides a course of intermediate and advanced German language.

Recommended literature:
 Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe.
 Vilma Václavíková: Nemčina pre študentov MFF UK, Vysokoškolský učebný text pre potrebu študentov KJP, č. 9793/1982 C VIII/2, 1983

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 78

A	B	C	D	E	FX
35,9	28,21	14,1	12,82	3,85	5,13

Lecturers: Mgr. Pavel Vilášek, Mgr. Alexandra Maďarová

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-INF-238/00	**Course title:** Graphical Models in Machine Learning

Educational activities:
  Type of activities: lecture
  Number of hours:
    per week: 4 **per level/semester:** 56
  Form of the course: on-site learning

Number of credits: 6

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 10

A	B	C	D	E	FX
70,0	0,0	0,0	10,0	20,0	0,0

Lecturers: doc. Mgr. Tomáš Vinař, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAI/2-IKV-236/10	**Course title:** Grounded Cognition

Educational activities: **Type of activities:** lecture / seminar **Number of hours:**   **per week:** 2 / 2 **per level/semester:** 28 / 28 **Form of the course:** on-site learning

Number of credits: 5

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements: Scale of assessment (preliminary/final): 70/30

Learning outcomes:

Class syllabus:

Recommended literature: Landauer T., Foltz P., & Laham D. (1998) Introduction to Latent Semantic Analysis. Discourse Processes, 25, 259-284. wiki Glenberg, A. M., & Mehta, S. (2008) Constraint on covariation: It's not meaning. Italian Journal of Linguistics, 20, 33-53. Wilson M. (2002) Six views of embodied cognition. Psychonomics Bulletin Review, 9(4), 625-636. Ziemke T. (2003) What's that thing called embodiment? Proc. of the 25th Annual Conf. of the Cog. Sci. Society, 1134-1139. Rizzolatti G., Fogassi L., Gallese V. (2001) Neurophysiological mechanisms underlying the understanding and imitation of action. Nature Rev. Neurosci., 2, 661-670. Gallese V., Keysers C. and Rizzolatti G. (2004). A unifying view of the basis of social cognition. Trends in Cog. Sci., 8, 396-403. Glenberg A. & Kaschak M. (2002) Grounding language in action. Psychonomic Bulletin & Review, 9(3), 558-565. Glenberg A. et al. (2008) Processing abstract language modulates motor system activity. Quarterly Journal of Exp. Psych., 61(6), 1-15. Pulvermueller F. (2005) Brain mechanisms linking language and action. Nature Rev. Neurosci., 6(7), 576-582. Zwaan R. & Taylor L. (2006) Seeing, acting, understanding: motor resonance in language comprehension. Journal of Exp. Psych.: General, 135, 1-11. Barsalou L. et al. (2008). Language and simulation in conceptual processing. In: de Vega, Glenberg & Graesser (eds), Symbols and Embodiment: Debates on Meaning and Cognition, Oxford University Press, 245-283.

Roy D. (2008) A mechanistic model of three facets of meaning. In: de Vega, Glenberg & Graesser (eds), Symbols and Embodiment: Debates on Meaning and Cognition, Oxford University Press, 195-222.

Roy D. (2005) Grounding words in perception and action: computational insights. Trends in Cog. Sci., 9(8), 389-96.

Galantucci B. & Steels L. (2008) The emergence of embodied communication in artificial agents and humans. In Wachsmuth I. et al. (eds), Embodied Communication in Humans and Machines, Oxford University Press, 229-256.

Steels L. (2008) The symbol grounding problem has been solved, so what's next? In: de Vega, Glenberg & Graesser (eds), Symbols and Embodiment: Debates on Meaning and Cognition, Oxford University Press, 223-244.

Mayberry M., Miikkulainen R. (2003) Incremental nonmonotonic parsing through semantic self-organization. Proc. of the 25th Annual Conf. of the Cog. Sci. Society, Boston, MA.

Mayberry M., Crocker M., Knoeferle P. (2006) A connectionist model of the coordinated interplay of scene, utterance, and world knowledge. Proc. of the 28th Annual Conf. of the Cog. Sci. Society, Vancouver, Canada.

Therriault D. & Rinck M. (2008). Multidimensional situation models. In: Schmalhofer F. & Perfetti C. (eds), Higher level language processes in the brain: inference and comprehension processes, Mahwah, NJ: Erlbaum, 311-328.

Frank S., Haselager W., & Van Rooij I. (2009) Connectionist semantic systematicity, Cognition, 110, 358-379.

de Vega M., Graesser A. & Glenberg A. (2008) Reflecting on the debate. In: de Vega, Glenberg & Graesser (eds) Symbols and Embodiment: Debates on Meaning and Cognition. Oxford University Press, 397-440.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 77

A	B	C	D	E	FX
33,77	25,97	23,38	5,19	10,39	1,3

Lecturers: prof. Ing. Igor Farkaš, Dr.

Last change: 23.09.2017

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAI/1-AIN-304/15	**Course title:** Introduction to Artificial Intelligence

Educational activities:
 Type of activities: lecture / practicals
 Number of hours:
  per week: 2 / 2 **per level/semester:** 28 / 28
 Form of the course: on-site learning

Number of credits: 6

Recommended semester: 1.

Educational level: I., II.

Prerequisites:

Course requirements:
 Doing small exercises, the project and the final exam.
 Scale of assessment (preliminary/final): Small exercises during the semester (30%)Projects
 (20%)Final written-oral exam (50%)

Learning outcomes:
 The student gets the basic insight into artificial intelligence, that can further be extended in master
 programme. The course covers the basics of symbolic and subsymbolic artificial intelligence. The
 theory is combined with practical exercises.

Class syllabus:
 UI definition, description of simple rational agents. Logical agents, uninformed and informed search
 for solution space, the basics of game theory and crawling with the opponent, problems with
 restrictive conditions, optimization. Learning from examples: supervised learning, classification
 and regression, model selection, generalization, regularization. Nonparametric models, nearest
 neighbor models, finding nearest neighbors with k-d tress, regression. Probabilistic computation:
 Basic concepts and methods. Reinforcement learning: basic concepts, learning methods, Fuzzy
 systems: fuzzy logic, formalism inspired by natural language. Robotics: Basic concepts and tasks.

Recommended literature:
 Stuart Russell and Peter Norvig, Artificial Intelligence: A Modern Approach (3rd edition),
 Prentice Hall, USA, 2010.

Languages necessary to complete the course:
 English, Slovak

Notes:

Past grade distribution
 Total number of evaluated students: 65

A	B	C	D	E	FX
10,77	15,38	15,38	20,0	16,92	21,54

Lecturers: doc. RNDr. Mária Markošová, PhD., prof. Ing. Igor Farkaš, Dr.

Last change: 07.12.2017
Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAI/2-IKV-121/00	**Course title:** Introduction to Cognitive Science

Educational activities:
  Type of activities: lecture / seminar
  Number of hours:
   per week: 1 / 2 **per level/semester:** 14 / 28
  Form of the course: on-site learning

Number of credits: 5

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:
 Readings 25%
 Short oral presentations 15%
 Paper 30%
 Paper peer review 10%
 Group work & colloquium 10%
 Integration reflection 10%

Learning outcomes:
 Content-wise, the students will learn about:
 History, theories, methods and topics of cognitive science
 Disciplines of cognitive science, their specific contributions
 Representational paradigms
 Cognitive modeling
 Ethical aspects of cognitive science and technologies
 Method-wise, the students will acquire the following skills:
 Think in an interdisciplinary way, appreciate multiple perspectives.
 Search and critically evaluate scientific knowledge sources.
 Critically read papers of different disciplines/styles.
 Orally present topics of interest.
 Learn about academic honesty practices and plagiarism.
 Write a scientific paper and cite literature properly.
 Review their peer's paper.
 Work independently, participate in discussions.

Class syllabus:
 History, object and methods of cognitive science. Representational paradigms: functionalism, cognitivism, connectionism, embodiment, dynamical systems. Computational modeling. Neuroscience. Ethical aspects of research in cognitive science.

Recommended literature:
 Silverman G., Friedenberg J. (2011): Cognitive science. An introduction to the study of mind. SAGE.

Thagard, P. (2005): Mind: Introduction to Cognitive Science, 2nd Edition. MIT Press.
Stainton, J.R (2006): Contemporary Debates in Cognitive Science. Wiley.
Bermúdez, J. L.(2014): Cognitive science. An introduction to the science of the mind. Cambridge University Press.

Languages necessary to complete the course:
English

Notes:

Past grade distribution
Total number of evaluated students: 137

A	B	C	D	E	FX
38,69	24,82	16,79	8,76	7,3	3,65

Lecturers: RNDr. Barbora Cimrová, PhD., RNDr. Kristína Malinovská, PhD.

Last change: 24.10.2016

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAI/2-IKV-115/00	Course title: Introduction to Computational Intelligence

Educational activities:
 Type of activities: lecture / seminar
 Number of hours:
  per week: 2 / 1 per level/semester: 28 / 14
 Form of the course: on-site learning

Number of credits: 5

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
 1. Introduction to computational intelligence, historical overview of methods and approaches.
 2. Architektures of intelligent agents. Structure, components, various representation formalisms. Cognitivism and emergenism.
 3. Symbolic artificial intelligence: overview of used methods (of logical reasoning, inferencing).
 4. Probabilistic reasoning, Bayesian nets, decision making.
 5. Introduction to artificial neural nets (ANN): inspiration from neurobiology, tasks suitable for ANNs.
 Feedforward ANNs.
 6. Data mining: self-organizing ANNs, feature extraction from high-dimensional data.
 7. Recurrent ANNs: temporal structure in data, incorporating time into models.
 8. Evolutionary algorithms, optimization.
 9. Fuzzy systems, fuzzy logic, linguistic variable, fuzzy reasoning.
 10. Summary. Using methods of computational intelligence in cognitive science.

Recommended literature:
 Various papers to particular topics.

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 127

A	B	C	D	E	FX
18,9	22,05	18,9	18,11	16,54	5,51

Lecturers: prof. Ing. Igor Farkaš, Dr.

Last change: 23.09.2017

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI-LF.FyÚ/2-IKV-123/00	**Course title:** Introduction to Neuroscience

Educational activities:
  Type of activities: lecture
  Number of hours:
    per week: 3 **per level/semester:** 42
  Form of the course: on-site learning

Number of credits: 5

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
 Neuro-immuno-endocrine regulation of human body.
 Gross functional anatomy of the nervous system, the brain as the main regulatory organ.
 The role of glial cells. Complex functions of the brain and the brain programmes.
 Neuronal signalling. The membrane potential, receptor potential. Nerve impulses, action potential.
 Conduction of nerve impulses. Stimulation of nerve fibres, refractory periods.
 Overview of neuronal communication, synaptic transmission, the role of myelin.
 Developmental physiology of the brain. Neuronal plasticity. Functional organization of neuronal circuits.
 Electrocorticogram, electroencephalogram, evoked potentials. Sleep and wakefulness.
 Physiology of emotions, behaviour and motivation. Higher nervous functions including memory, learning and speech.
 Functional specialization of brain hemispheres and gender dimorphism.

Recommended literature:
 Koukolík,F.: Mozek a jeho duše. 3.vyd. Galén, Praha, 2005, 275 s.
 Bear, M.F., Connors, B.W., Paradiso, M.A.: Neuroscience – exploring the brain. 2nd ed.
 Lippincott, Williams and Wilkins, Baltimore, 2001, 855 pp.
 Gazzaniga,M.S., Ivry,R.B., Mangun,G.R.: Cognitive neuroscience – the biology of the mind.
 W.W.Norton, New York, 2002, 681 pp.
 Kandel, E.R., Schwartz, J.H., Jessel, T.M.: Principles of Neural Science. 4th ed. McGraw-Hill Medical, 2000, 1414pp.

Languages necessary to complete the course:

Notes:

Past grade distribution Total number of evaluated students: 140					
A	B	C	D	E	FX
14,29	20,71	28,57	13,57	20,71	2,14

Lecturers: prof. MUDr. Daniela Ostatníková, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAI/2-IKV-114/00	**Course title:** Introduction to Philosophy of Mind

Educational activities:
  Type of activities: lecture / seminar
  Number of hours:
    per week: 2 / 2 **per level/semester:** 28 / 28
  Form of the course: on-site learning

Number of credits: 5

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:
Grading scale: A>90%, B>80%, C>70%, D>60%, E>50%
Scale of assessment (preliminary/final): activity during the seminar (20%), written final paper (80%)

Learning outcomes:
Students acquire knowledge of representative philosophical conceptions and problems within contemporary philosophy of mind. They will be acquainted with main arguments and types of argumentation on the mind/body problem and they will improve their capacity for critical discussion and ability to defend their own attitudes.

Class syllabus:
Mind/Body(brain) problem, basic terminology: concepts: mind, consciousness, reason, subjectivity, intentionality, mental causality; first- and third-person perspectives; Dualism – substance dualism, Cartesian dualism; problems for dualism; The Mind/Brain identity theory – historical background, the type-type identity theory and the token-token identity theory, strengths of and problems for the identity theory; Behaviourism: analytical, methodological, ontological; Functionalism – metaphysical functionalism, psycho- functionalism, computational; functionalism, strengths and criticism; Problem of mental causation, reasons for actions as causes; Reason and emotions: neuroscience research, findings (case studies); Wittgenstein: relation between language, mind and the world.; Personal identity as physical/psychological continuity, the nature of the Self.

Recommended literature:
An Introduction to the Philosophy of Mind/S. Gáliková. Trnava: FFTU, 2013. An introduction to the philosophy of mind / K. T. Maslin. Cambridge : Polity, 2007

Languages necessary to complete the course:

Notes:

Past grade distribution					
Total number of evaluated students: 131					
A	B	C	D	E	FX
41,22	31,3	15,27	5,34	5,34	1,53

Lecturers: prof. PhDr. Silvia Gáliková, PhD.

Last change: 02.10.2017

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAI/2-IKV-111/15	**Course title:** Introduction to Psychology

Educational activities: **Type of activities:** lecture / seminar **Number of hours:**   **per week:** 2 / 1 **per level/semester:** 28 / 14 **Form of the course:** on-site learning

Number of credits: 4

Recommended semester: 1.

Educational level: II.

Prerequisites:

Antirequisites: FMFI-FSEV/2-IKV-111/00

Course requirements: Students are required to attend and actively participate in the lectures and seminars (20%). In order to obtain the credits, students need to pass the midterm (20%) and final test (20%). During the semester, two seminar assignments will be present: (1) each student will choose a seminar project (presentation of a theoretical topic; 20%) and (2) seminar reading (a brief report of an interesting empirical research paper; 20%). Scale of assessment (preliminary/final): Midterm: written exam (25%) & seminar projects (25%).Examination period: final written exam (50%)Grading: A: 91–100; B: 81–90; C: 73–80; D: 66–72; E: 60–65; Fx: 0–59

Learning outcomes: Psychology is the scientific study of behavior and mind. Through this introductory course, students of cognitive science will have the opportunity to understand several essential topics in science of psychology. After introducing the most influential schools of thought and fundamentals of research methods in psychology, selected key concepts related to cognition and emotion are discussed. These concepts range from elementary psychological phenomena to more complex psychological functions concerning sensation, perception, attention, memory, thinking and creativity.

Class syllabus: Introduction. Brief history & Subject. Mind, Brain & Body. General Psychology. Psychological Methods. Developmental Psychology. The psychology of Personality. Clinical Psychology. Social Psychology.

Recommended literature: Introduction to Psychology (Kalat, 2010) Atkinson & Hilgard's Introduction to Psychology (2014) Research in Psychology: Methods and Design (Goodwin, 2009) Stevens' Handbook of Experimental Psychology: Methodology in Experimental Psychology (Pashler & Wixted, 2002)

Languages necessary to complete the course: English, Slovak

Notes:
Students can also choose to carry out a simple empirical assessment and present (i.e., discuss) the results as a seminar project.

Past grade distribution
Total number of evaluated students: 123

A	B	C	D	E	FX
23,58	31,71	21,14	11,38	9,76	2,44

Lecturers: Mgr. Martin Marko, PhD.

Last change: 23.09.2017

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAI/2-INF-150/15	Course title: Machine Learning

Educational activities: Type of activities: lecture Number of hours: per week: 4 per level/semester: 56 Form of the course: on-site learning

Number of credits: 6

Recommended semester: 1.

Educational level: II.

Prerequisites:

Recommended prerequisites: (1-INF-115 Algebra (1) OR 1-AIN-152 Linear Algebra) AND 2-INF-175 Probability and Statistics

Course requirements: homework assignments, project, final exam Scale of assessment (preliminary/final): 60/40

Learning outcomes: Students will be familiar with basic machine learning techniques, and they will be able to use these techniques in practical applications.

Class syllabus: Supervised machine learning (linear and generalized linear regression, neural networks, classification with support vector machines, kernel methods, discrete classifiers). Machine learning theory (statistical model of machine learning, bias-variance trade-off, overfitting and underfitting, PAC learning, VC dimension estimates). Unsupervised machine learning (clustering, self-organizing maps, principal component analysis). Reinforcement learning. Ensemble learning (bagging, boosting).

Recommended literature: The elements of statistical learning : Data mining, inference, and prediction / Trevor Hastie, Robert Tibshirani, Jerome Friedman. New York : Springer, 2009 Pattern recognition and machine learning / Christopher M. Bishop. New York : Springer, 2006 Machine learning / T. M. Mitchell. New York : McGraw Hill, 1997 Biological sequence analysis : Probabilistic models of proteins and nucleic acids / Richard Durbin ... [et al.]. Cambridge : Cambridge University Press, 1998

Languages necessary to complete the course: Slovak, English

Notes:

Past grade distribution

Total number of evaluated students: 87

A	B	C	D	E	FX
33,33	19,54	20,69	9,2	5,75	11,49

Lecturers: doc. Mgr. Tomáš Vinař, PhD.

Last change: 24.10.2016

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAGDM/2-IKV-267/00	**Course title:** Mathematical Logic for Cognitive Science

Educational activities:
  Type of activities: lecture / practicals
  Number of hours:
   per week: 2 / 1 **per level/semester:** 28 / 14
  Form of the course: on-site learning

Number of credits: 5

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
0. Introduction: thinking, language and logic
1. Sentential calculus: syntax, semantics, soundness and completeness
2. First-order logic: syntax, semantics, soundness and completeness, compactness, interpretations, nonstandard models
3. Godel incompleteness theorems: Peano arithmetics, arithmetization of syntax, computable functions, incompleteness and undecidability, consequences

Recommended literature:
H. B. Enderton, A mathematical introduction to logic, (2nd ed.), Harcourt - Academy Press, San Diego-New York-Boston-London-Toronto-Sydney-Tokyo, 2001

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 94

A	B	C	D	E	FX
24,47	26,6	27,66	12,77	5,32	3,19

Lecturers: prof. RNDr. Pavol Zlatoš, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAGDM/2-IKV-102/15	**Course title:** Mathematics

Educational activities:
  Type of activities: lecture / practicals
  Number of hours:
   per week: 2 / 2 **per level/semester:** 28 / 28
  Form of the course: on-site learning

Number of credits: 4

Recommended semester: 1.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KAI/2-IKV-102/00

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 47

A	B	C	D	E	FX
46,81	21,28	4,26	10,64	6,38	10,64

Lecturers: Mgr. Martina Babinská, PhD.

Last change: 01.10.2017

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAI/2-IKV-181/00	**Course title:** Meaning and Communication

Educational activities: **Type of activities:** lecture / seminar **Number of hours:**   **per week:** 2 / 1 **per level/semester:** 28 / 14 **Form of the course:** on-site learning

Number of credits: 5

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus: - Logical analysis and analysis of language practices – two rival approaches? - Meaning of an expression as its use (usage) - J. L. Austin about meaning; meanings of „meaning" by Austin performatives versus constatives - Speech act as the basic unit of communication - Performative and constative utterances - Taxonomy of speech acts and its criteria - Locutionary, illocutionary and perlocutionary aspects of a speech act (discussion: Strawson – Austin - Searle) - Referring as a speech act - Applications of the speech acts theory - Elaboration of the speech acts theory byRozpracovanie teórie rečových aktov v prácach J. Searla, štruktúra ilokučných aktov - Psychological theories of meaning; H. P. Grice – sentence meaning and utterer's meaning - Logic and conversation; conversational „implicatures" - Conversational maxims

Recommended literature: Austin, J. L.: Ako niečo robiť slovami, Kalligram, Bratislava 2004 Grice, H. P.: Studies in the Way of Words, Harvard University Press 1991 Koťátko, P.: Význam a komunikace, Filosofia, Praha, 1998 Searle, J. R.: Rečové akty, Kalligram, Bratislava 2006

Languages necessary to complete the course:

Notes:

Past grade distribution					
Total number of evaluated students: 28					
A	B	C	D	E	FX
28,57	39,29	7,14	3,57	10,71	10,71

Lecturers: PhDr. Dezider Kamhal, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-ERA-001/15	**Course title:** Mobility Project I

Educational activities:
  Type of activities:
  Number of hours:
   per week: per level/semester:
  Form of the course: on-site learning

Number of credits: 10

Recommended semester: 3.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KAI/2-ERA-001/00

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 75

A	B	C	D	E	FX
37,33	25,33	8,0	13,33	9,33	6,67

Lecturers:

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-ERA-002/15	**Course title:** Mobility Project II

Educational activities:
 Type of activities:
 Number of hours:
  per week: per level/semester:
 Form of the course: on-site learning

Number of credits: 15

Recommended semester: 3.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KAI/2-ERA-002/00

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 44

A	B	C	D	E	FX
75,0	11,36	9,09	4,55	0,0	0,0

Lecturers:

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-ERA-003/15	**Course title:** Mobility Project III

Educational activities:
  Type of activities:
  Number of hours:
   per week: per level/semester:
  Form of the course: on-site learning

Number of credits: 20

Recommended semester: 3.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KAI/2-ERA-003/00

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 56

A	B	C	D	E	FX
69,64	17,86	10,71	0,0	0,0	1,79

Lecturers:

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-IKV-137/15	**Course title:** Modern Methods in Brain Research

Educational activities:
  Type of activities: lecture / seminar
  Number of hours:
    per week: 2 / 1 **per level/semester:** 28 / 14
  Form of the course: on-site learning

Number of credits: 5

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 25

A	B	C	D	E	FX
36,0	20,0	28,0	0,0	12,0	4,0

Lecturers: RNDr. Barbora Cimrová, PhD.

Last change: 23.09.2017

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAI/2-IKV-164/15	**Course title:** Multiagent Systems

Educational activities:
  Type of activities: lecture / practicals
  Number of hours:
    per week: 2 / 2 per level/semester: 28 / 28
  Form of the course: on-site learning

Number of credits: 6

Recommended semester: 4.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KAI/2-IKV-164/00

Course requirements:
exercises and project participation Scale: A 75%, B 68%, C 62%, D 56%, E 50%
Scale of assessment (preliminary/final): 50/50

Learning outcomes:
We provide knowledge from domain of multi-agent system. The primary focus is put on development of system which produces extremely complex behavior (robots, models of living creatures).

Class syllabus:
Agent (a specific definition). Autonomy and mobility. Receptors, efectors, controller, senzors, aktuators. Agent classification: reactive, deliberative and hybrid agents. Communication among agents: direct and indirect. Representation languages: XML and KIF. Multi-agent system (a specific definition). Communication languages. KQML. Implementation of multi-agent systems. Multi-agent system implemented as a middleware.Implementation within OOP virtual machine. Implementation over SRR model (IPC). Pyramidal Client − Server architecture. Agent − Space architecture. Robustness, decentralization, normalization. Deliberative and non-deliberative robotics. New artificial intelligence. Dekomposition by function and activity. Subsumption architecture. PKA model.

Recommended literature:
Cambrian intelligence : The early history of the new / Rodney A. Brooks. Cambridge, Mass. :
MIT Press, 1999 http://www.microstep-mis.com/~andy Jozef Kelemen: Strojovia a agenty,
Archa, Bratislava, 1993 Nils J. Nilson: Artificial Intelligence, A new synthesis, Morgan
Kaufman Publishers Inc., San Francisco, Ca, 1997 R. Brooks: Cambrian Intelligence, MIT Press,
Cambridge, Mass, 1999

Languages necessary to complete the course:
SK, EN
Slovak, English

Notes:

Past grade distribution Total number of evaluated students: 7					
A	B	C	D	E	FX
28,57	14,29	42,86	14,29	0,0	0,0

Lecturers: RNDr. Andrej Lúčny, PhD.

Last change: 23.09.2017

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-IKV-189/16	**Course title:** Natural Language Processing

Educational activities:
  Type of activities: lecture / practicals
  Number of hours:
    per week: 2 / 2 **per level/semester:** 28 / 28
  Form of the course: on-site learning

Number of credits: 6

Recommended semester: 2., 4.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:
The students will acquire knowledge and practical experience in the field of natural language processing. They will know how to effectively apply the underlying theory from probability, statistics, computational linguistics, and machine learning, to perform tasks involving unstructured text, such as spelling correction, text generation, sentiment analysis, information extraction, and question answering.

Class syllabus:
(1) Text Processing.
(2) Language Modeling (n-grams), Spelling Correction.
(3) Text Classification (Naive Bayes), Sentiment Analysis.
(4) Named Entity Recognition (HMM, MaxEnt), Relation Extraction.
(5) POS Tagging, Parsing.
(6) Information Retrieval.
(7) Meaning Extraction, Question Answering.

Recommended literature:
Speech and Language Processing, 2nd Edition / Daniel Jurafsky, James H Martin. Upper Saddle River : Prentice Hall, 2008

Languages necessary to complete the course:
English

Notes:

Past grade distribution
Total number of evaluated students: 4

A	B	C	D	E	FX
75,0	25,0	0,0	0,0	0,0	0,0

Lecturers: Mgr. Ivor Uhliarik

Last change: 23.09.2017

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-AIN-132/15	**Course title:** Neural Networks

Educational activities:
  Type of activities: lecture / practicals
  Number of hours:
   per week: 2 / 2 **per level/semester:** 28 / 28
  Form of the course: on-site learning

Number of credits: 6

Recommended semester: 2.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KAI/1-AIN-480/00

Course requirements:
individual projects, written and oral exam
Scale: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 60/40

Learning outcomes:
After completing the course will student understands the basic principles of connectionism (neural networks) know the basic models of neural networks and know their usefulness when solving various tasks (eg. Pattern recognition, classification, time series prediction, memorizing patterns and others). Lectures are combined with computer simulations exercises in Matlab.

Class syllabus:
Introduction to artificial neural networks (NS), NS logical neurons. The digital / analog Perceptron: the concept of learning with a teacher pattern recognition.
Linear NS: vector spaces, autoassociative memory. Multi-layer perceptron: the method of back propagation error, training and test set, generalization, selection of model validation. Hebbovské learning without a teacher, feature extraction, principal component analysis. Learning the competition, self-organizing map clustering, topographic display. Hybrid NS: radial-basis-function NS algorithm for training, properties. Recurrent NS: temporal structure in data, models and algorithms for training, echo state networks, recurrent self-organizing maps. Hopfield model: deterministic and stochastic dynamics, attractors in state space, autoassociative memory. Deep architecture NS.

Recommended literature:
Neural networks and learning machines / Simon Haykin. Upper Saddle River : Pearson education, 2009
Úvod do teórie neurónových sietí / Vladimír Kvasnička ... [et al.]. Bratislava : Iris, 1997
Neural networks (slajdy k prednáškam), Igor Farkaš, Knižničné a edičné centrum FMFI UK v Bratislave, 2011.

Languages necessary to complete the course:

Notes:					
Past grade distribution Total number of evaluated students: 51					
A	B	C	D	E	FX
31,37	7,84	11,76	13,73	11,76	23,53
Lecturers: prof. Ing. Igor Farkaš, Dr.					
Last change: 22.09.2017					
Approved by: prof. Ing. Igor Farkaš, Dr.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-ERA-004/15	**Course title:** New Trends in Cognitive Science

Educational activities:
  Type of activities:
  Number of hours:
   per week: **per level/semester:**
  Form of the course: on-site learning

Number of credits: 10
Recommended semester: 3.
Educational level: II.
Prerequisites:
Antirequisites: FMFI.KAI/2-ERA-004/09
Course requirements:
Learning outcomes:
Class syllabus:
Recommended literature:
Languages necessary to complete the course:
Notes:
Past grade distribution Total number of evaluated students: 91

A	B	C	D	E	FX
31,87	43,96	18,68	5,49	0,0	0,0

Lecturers:
Last change: 02.06.2015
Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-IKV-238/15	**Course title:** Philosophy of Artificial Intelligence

Educational activities:
  Type of activities: lecture / seminar
  Number of hours:
    per week: 2 / 1 **per level/semester:** 28 / 14
  Form of the course: on-site learning

Number of credits: 5

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 7

A	B	C	D	E	FX
85,71	0,0	0,0	0,0	14,29	0,0

Lecturers: prof. PhDr. Emil Višňovský, CSc.

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAI/2-IKV-143/00	**Course title:** Philosophy of Language

Educational activities:
  Type of activities: lecture / seminar
  Number of hours:
    per week: 2 / 1 **per level/semester:** 28 / 14
  Form of the course: on-site learning

Number of credits: 5

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
 - Frege's semantic triangle
 - B. Russell and his theory of definite descriptions
 - Critics of Russell's theory of descriptions by P. F. Strawson and by K. S. Donnellan
 - Relation between language and „world" („Tractatus Logico-Philosophicus" by Wittgenstein)
 - Logical positivism and critics of the traditional philosophy and its alleged „pseudo-problems"
 - Natural language and constructed language – two aproaches to ordinary language
 - W. v. O. Quine and two dogmas of empiricism
 - „In Defense of a Dogma" – H. P. Grice and P. F. Strawson
 - Meaning of an expression as an object versus meaning of an expression as its use (usage)
 - Late Wittgenstein – rejection of Tractarian view on language and on philosophical analysis
 - „Blue and Brown Books", language games and family resemblances
 - „Philosophical Investigations", meaning of expression as its use, therapeutic view on philosophy,
 - Moore's defense of common sense and his „proof" of an external world; Wittgenstein's notes on certainty
 - Language games and following rules („Philosophical Investigations")

Recommended literature:
 Peregrin, J.: Kapitoly z analytické filozofie, Nakladatelství Fil. ústavu AV ČR, Praha 2005
 Lycan, W. G.: Philosophy of Language. A Contemporary Introduction, Routledge 2001
 Wittgenstein, L.: Modrá a Hnedá kniha, Kalligram, Bratislava 2002
 Wittgenstein, L.: O istote, Kalligram, Bratislava 2006
 Oravcová, M. (edit.): Filozofia prirodzeného jazyka, Archa, Bratislava 1992
 Kamhal, D.(edit.): Z analytickej filozofie I., UK Bratislava 1993, skriptá

Languages necessary to complete the course:

Notes:

Past grade distribution					
Total number of evaluated students: 68					
A	B	C	D	E	FX
30,88	30,88	11,76	7,35	16,18	2,94

Lecturers: PhDr. Dezider Kamhal, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KTV/2-MXX-110/00	**Course title:** Physical Education and Sport (1)

Educational activities:
  Type of activities: practicals
  Number of hours:
    per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
 Practicing of the students´ game skills in collective sports: basketball, volleyball, football, floorball and hockey. Mastering of the basic technique of a particular sport discipline in other sports. In paddling, basic training on still and slightly flowing water. Development of coordination skills, improvement of articular mobility and cardiovascular system.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 1329

A	B	C	D	E	FX
99,1	0,6	0,0	0,0	0,0	0,3

Lecturers: PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický, doc. PhDr. Vojtech Potočný, CSc., Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KTV/2-MXX-120/00	**Course title:** Physical Education and Sport (2)

Educational activities:
  Type of activities: practicals
  Number of hours:
    per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Practicing of offensive and defensive game combinations and playing with modified rules in collective sports such as basketball, volleyball, football, floorball, hockey. Command of elements of higher difficulty in locomotion skills (swimming - crawl stroke, breast stroke, butterfly stroke, trampoline jumping and aerobics – practicing of areobics compositions, bodybuilding – development of the main muscle groups, paddling on running water. Testing of the level of physical fitness and coordination skills.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 1223

A	B	C	D	E	FX
99,84	0,08	0,0	0,0	0,0	0,08

Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Branislav Nedbálek, PaedDr. Mikuláš Ortutay, Mgr. Ondrej Podkonický, doc. PhDr. Vojtech Potočný, CSc., Mgr. Júlia Raábová, PhD.

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KTV/2-MXX-210/00	Course title: Physical Education and Sport (3)

Educational activities:
  Type of activities: practicals
  Number of hours:
   per week: 2 per level/semester: 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus: To improve offensive and defensive game combinations in collective sports. Practicing of tactical and technical elements in individual sports. Compensatory exercises to correct wrong body posture. Stretching. Competition rules in sport disciplines.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 992

A	B	C	D	E	FX
99,4	0,4	0,0	0,0	0,0	0,2

Lecturers: PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický, doc. PhDr. Vojtech Potočný, CSc., Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KTV/2-MXX-220/00	**Course title:** Physical Education and Sport (4)

Educational activities:
  Type of activities: practicals
  Number of hours:
    per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
 Sport training for Faculty Championships in a selected sport with modified rules. Selection of sport-talented students into teams of the Faculty Sport League, University League of Bratislava Faculties, and participation in sport events of the Faculty and University.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 868

A	B	C	D	E	FX
99,31	0,46	0,0	0,0	0,12	0,12

Lecturers: PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický, doc. PhDr. Vojtech Potočný, CSc., Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, Mgr. Branislav Nedbálek

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAI/2-IKV-167/00	Course title: Practical Classes in Robotics

Educational activities: Type of activities: seminar Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning

Number of credits: 3

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus: Seminar topics will cover: robotic control architectures, probabilistic robotics, multi-robotic systems, evolutionary robotics, sensor systems and actuators, educational robotics, robotic competitions, entertainment robotics, servis robotics, embedded systems.

Recommended literature: Kortenkamp, Bonasso, Murphy, Artificial Intelligence and Mobile Robots, MIT Press, 1998 Dudek, Jenkin: Computational Principles of Mobile Robotics, Cambridge Univ. Press, 2000 Corrochano, Geometric Computing for Perception Action Systems, Springer, 2001 Arkin, Behavior-Based Robotics, MIT Press, 2000 Tomasi, Mathematical Methods for Robotics and Vision, Stanford University, 2000 Nehmzow, Scientific Methods in Mobile Robotics, Springer, 2006. Additional papers upon need

Languages necessary to complete the course:

Notes:

Past grade distribution Total number of evaluated students: 21

A	B	C	D	E	FX
52,38	4,76	28,57	4,76	4,76	4,76

Lecturers: Mgr. Pavel Petrovič, PhD.

Last change: 24.10.2016

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/2-INF-175/15	**Course title:** Probability and Statistics

Educational activities:
 Type of activities: lecture / practicals
 Number of hours:
  per week: 3 / 1 **per level/semester:** 42 / 14
 Form of the course: on-site learning

Number of credits: 5

Recommended semester: 1.

Educational level: I., II.

Prerequisites:

Antirequisites: FMFI.KAMŠ/1-INF-435/13

Course requirements:
written tests, final exam
Scale of assessment (preliminary/final): 30/70

Learning outcomes:
Students will be familiar with mathematical foundations of probability and statistics. They will be able to solve common types of problems involving probability and conduct simple statistical analyses.

Class syllabus:
Definition of probabilistic model and basic properties of probabality, conditional probability, Bayes theorems, random variables, random vectors and their characteristics, limit theorems, introduction to Markov chain theory, probabilistic theory of information, regression model with normally distributed errors, introduction to theory of parameter estimation and statistical hypothesis testing

Recommended literature:
Pravdepodobnosť a matematická štatistika : Štatistické analýzy / František Lamoš, Rastislav Potocký. Bratislava : Univerzita Komenského, 1998
Zbierka úloh zo základov teórie pravdepodobnosti / Radoslav Harman, Erika Hönschová, Ján Somorčík. Bratislava : PACI, 2009
Electronic course notes published on the course web site

Languages necessary to complete the course:
Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 87

A	B	C	D	E	FX
35,63	12,64	20,69	11,49	17,24	2,3

Lecturers: Mgr. Lenka Filová, PhD., Mgr. Lívia Leššová

Last change: 22.08.2015
Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAI/2-IKV-183/00	**Course title:** Psycholinguistics

Educational activities:
 Type of activities: lecture / seminar
 Number of hours:
  per week: 2 / 1 **per level/semester:** 28 / 14
 Form of the course: on-site learning

Number of credits: 5

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
 - birth and history of psycholinguistics
 - basic methods of psycholinguistics
 - phonolóogy and morphology of language
 - language syntax
 - language semantisc and pragmatic processes
 - theories of speech understanding
 - theories of speech production

Recommended literature:
 Cairns, H. S.: Psycholinguistics: An Introduction. Austin, TX: PRO-ED 1999.

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 46

A	B	C	D	E	FX
32,61	19,57	13,04	10,87	10,87	13,04

Lecturers: Mgr. Jana Bašnáková

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-AIN-145/10	**Course title:** Qualitative Modelling and Simulation

Educational activities:
  Type of activities: course
  Number of hours:
    per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 3

Recommended semester: 4.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KI/2-AIN-143/00

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 63

A	B	C	D	E	FX
36,51	19,05	15,87	11,11	17,46	0,0

Lecturers: doc. RNDr. Martin Takáč, PhD.

Last change: 22.09.2017

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-IKV-185/15	**Course title:** Robust Statistical Models in Eexperimental Research of Cognition

Educational activities:
  Type of activities: lecture / seminar
  Number of hours:
   per week: 1 / 2 **per level/semester:** 14 / 28
  Form of the course: on-site learning

Number of credits: 5

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 0

A	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0

Lecturers: prof. Mgr. Martin Kanovský, PhD.

Last change:

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-161/00	**Course title:** Russian Language (1)

Educational activities:
  Type of activities: practicals
  Number of hours:
    per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
 The subject provides a course in Russian language for beginners.

Recommended literature:
 The textbook has not been published. It is at students' disposal in an electronic format.

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 642

A	B	C	D	E	FX
60,9	16,2	9,66	4,83	1,71	6,7

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-162/00	**Course title:** Russian Language (2)

Educational activities:
  Type of activities: practicals
  Number of hours:
   per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
 The subject continues the program of Russian language (1) and provides a course of Russian for beginners.

Recommended literature:
 The textbook has not been published. It is at students' disposal in an electronic format.

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 389

A	B	C	D	E	FX
65,81	16,2	9,0	3,34	1,03	4,63

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-261/00	**Course title:** Russian Language (3)

Educational activities:
  Type of activities: practicals
  Number of hours:
   per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
 The course "Russian for Intermediate Students" is a follow-up to "Russian for Beginners". The subject of the course is general Russian in the range appropriate to the given level.

Recommended literature:
 The textbook has not been published. It is at students' disposal in an electronic format.

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 191

A	B	C	D	E	FX
70,68	17,28	8,38	2,62	0,0	1,05

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-262/00	**Course title:** Russian Language (4)

Educational activities:
  Type of activities: practicals
  Number of hours:
   per week: 2 **per level/semester:** 28
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
 The course "Russian for Intermediate Students" is a follow-up to "Russian for Beginners". The subject of the course is general Russian in the range appropriate to the given level.

Recommended literature:
 The textbook has not been published. It is at students' disposal in an electronic format.

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 130

A	B	C	D	E	FX
73,85	13,85	7,69	3,08	0,77	0,77

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-IKV-122/15	**Course title:** Semester Project

Educational activities:
  Type of activities: independent work
  Number of hours:
    per week: 4 **per level/semester:** 56
  Form of the course: on-site learning

Number of credits: 5

Recommended semester: 2.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KAI/2-IKV-122/00

Course requirements:
During the semester: 2 versions of project specification document, 4 presentations of the project progress (see syllabus).
Final: presentation of the project on the international student conference MEi:CogSci - evaluation of final poster and it's overall scientific outcome.
Approx. evaluation scale: A 90%, B 80%, C 70%, D 60%, E 50%.
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
Aim of this course is to gain experience and skills in the domain of scientific work. Students choose their topics of interest, create research goals and tasks arranged in a coherent work plan, according to which they work on the project and present the partial outcomes of their project during the semester. At the end of the term students present their results in form of a poster accompanied by an enhanced abstract on an international student conference of the MEi:CogSci consortium. Apart from independent research work experience students gain and practice transferable skills such as planning, evaluating their work progress, presenting ideas and results, scientific writing, and reviewing.

Class syllabus:
1. introduction, about the semester project, MEi:CogSci conference, assignment details, project topics
2. 2nd year students' presentation about the student mobility
3. project topics presentations
4. studied literature presentations
5. preliminary results presentations
6. poster presentations
continuously: workshops and consultations

Recommended literature:

Languages necessary to complete the course:
English

Notes:					
Past grade distribution Total number of evaluated students: 116					
A	B	C	D	E	FX
51,72	22,41	12,93	2,59	2,59	7,76
Lecturers: RNDr. Kristína Malinovská, PhD., RNDr. Barbora Cimrová, PhD.					
Last change: 19.02.2018					
Approved by: prof. Ing. Igor Farkaš, Dr.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-ERA-005/15	**Course title:** Special Topic of Interest Module I

Educational activities: **Type of activities:** **Number of hours:**   **per week: per level/semester:** **Form of the course:** on-site learning
Number of credits: 5
Recommended semester: 3.
Educational level: II.
Prerequisites:
Antirequisites: FMFI.KAI/2-ERA-005/09
Course requirements:
Learning outcomes:
Class syllabus:
Recommended literature:
Languages necessary to complete the course:
Notes:
Past grade distribution Total number of evaluated students: 40

A	B	C	D	E	FX
52,5	27,5	5,0	7,5	5,0	2,5

Lecturers:
Last change: 02.06.2015
Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-ERA-006/15	**Course title:** Special Topic of Interest Module II

Educational activities:
  Type of activities:
  Number of hours:
   per week: per level/semester:
  Form of the course: on-site learning

Number of credits: 10

Recommended semester: 3.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KAI/2-ERA-006/09

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 56

A	B	C	D	E	FX
28,57	37,5	16,07	14,29	3,57	0,0

Lecturers:

Last change: 02.06.2015

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KTV/1-MXX-115/15	**Course title:** Sports in Nature (1)

Educational activities: 　**Type of activities:** 　**Number of hours:** 　　**per week:**　**per level/semester:** 　**Form of the course:** on-site learning
Number of credits: 2
Recommended semester: 1.
Educational level: I., II.
Prerequisites:
Course requirements:
Learning outcomes:
Class syllabus:
Recommended literature:
Languages necessary to complete the course:
Notes:
Past grade distribution 　Total number of evaluated students: 171

A	B	C	D	E	FX
99,42	0,0	0,58	0,0	0,0	0,0

Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický
Last change: 25.05.2016
Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KTV/1-MXX-115/15	**Course title:** Sports in Nature (1)

Educational activities:
  Type of activities:
  Number of hours:
   per week: per level/semester:
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 171

A	B	C	D	E	FX
99,42	0,0	0,58	0,0	0,0	0,0

Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický

Last change: 25.05.2016

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KTV/1-MXX-215/15	**Course title:** Sports in Nature (2)

Educational activities:
  Type of activities:
  Number of hours:
    per week: per level/semester:
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 94

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický

Last change: 25.05.2016

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KTV/1-MXX-215/15	**Course title:** Sports in Nature (2)

Educational activities:
  Type of activities:
  Number of hours:
   per week: per level/semester:
  Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 94

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický

Last change: 25.05.2016

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/2-IKV-186/15	**Course title:** Theory of Mind

Educational activities:
  Type of activities: lecture / seminar
  Number of hours:
   per week: 1 / 2 **per level/semester:** 14 / 28
  Form of the course: on-site learning

Number of credits: 4

Recommended semester: 2., 4.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 0

A	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0

Lecturers: Mgr. Juraj Bánovský

Last change:

Approved by: prof. Ing. Igor Farkaš, Dr.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAI+KZVI/2- AIN-111/15	Course title: Web Technologies and Methodology

Educational activities: Type of activities: lecture / practicals Number of hours: per week: 2 / 2 per level/semester: 28 / 28 Form of the course: on-site learning

Number of credits: 6

Recommended semester: 1.

Educational level: I., II.

Prerequisites:

Course requirements: homeworks, project, written project exam Scale: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 50/50

Learning outcomes: Overview of web technologies in connection with their use and applications for different purposes. The principles of designing websites, applications, web-based user interfaces, and web content.

Class syllabus: - Architecture WWW - Web technology on the server side (overview) - Web technology on the client side (overview) - Types of websites, applications, components and interfaces - The methodology of web sites and applications - Information Architecture - Structure of the Web Sites - Design of the Web Sites - Principles and methodology of web content - Testing, optimization and management of web applications and web content - Level of quality of web sites and applications

Recommended literature: Information architechture for the World Wide Web / Louis Rosenfeld, Peter Morville. Cambridge : O´Reilly, 1998 Tvoříme přístupné webové stránky : Připraveno s ohledem na novelu Zákona č. 365/2000 Sb., o informačních systémech veřejné správy / David Špinar. Brno : Zoner Press, 2004 Web Style Guide, 3rd ed. / P.J. Lynch, S. Horton. Yale University Press, 2008. Dostupné online: http://webstyleguide.com/wsg3/

Languages necessary to complete the course:

Notes:					
Past grade distribution Total number of evaluated students: 89					
A	B	C	D	E	FX
7,87	12,36	7,87	12,36	41,57	17,98
Lecturers: doc. RNDr. Zuzana Kubincová, PhD., RNDr. Martin Homola, PhD., Mgr. Ján Kľuka, PhD., RNDr. Kristína Malinovská, PhD.					
Last change: 22.09.2017					
Approved by: prof. Ing. Igor Farkaš, Dr.					