FACULTY W-8 / DEPARTMENT……

SUBJECT CARD

Name in Polish Wprowadzenie do sztucznej inteligencji
Name in English … Introduction to Artificial Intelligence
Main field of study (if applicable): Computer Science
Specialization (if applicable): ……..
Level and form of studies: 1st/ ~~2nd*~~ level, full-time / ~~part-time~~*
Kind of subject: obligatory / ~~optional / university-wide~~*
Subject code INZ0279Wl
Group of courses YES / ~~NO~~*

	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU)	30		30		
Number of hours of total student workload (CNPS)	60		60		
Form of crediting	Examination / ~~crediting with grade~~*	Examination / crediting with grade*	~~Examination~~ / crediting with grade*	Examination / crediting with grade*	Examination / crediting with grade*
For group of courses mark (X) final course	X				
Number of ECTS points	2		2		
including number of ECTS points for practical (P) classes	0		2		
including number of ECTS points for direct teacher-student contact (BK) classes	1,2		1,2		

*delete as applicable

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. K2INF_W01
2. K2INF_W02
3. K2INF_U01
4. K2INF_U02

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SUBJECT OBJECTIVES

C1: Introducing students to the area of artificial intelligence
C2: To familiarize students with the basic methods for specific types of problems.
C3: To teach how to select an appropriate intelligent technique to a given problem.

SUBJECT EDUCATIONAL EFFECTS

relating to knowledge:
PEK_W01: Has basic knowledge of search and planning problems.
PEK_W02: Has basic knowledge of knowledge representation and inference methods.
PEK_W03: Know simple, popular methods of uncertain knowledge processing.
PEK_W04: Understands concepts related to the acquisition of knowledge from data and machine learning.
…
relating to skills:
PEK_U01: Is able to choose the appropriate intelligent method to a problem.
PEK_U02: Ability to analyze the results and prepare a report on the experiments.
PEK_U03: He can practically use the selected tools and systems.
…
relating to social competences:
PEK_K01
PEK_K02

PROGRAMME CONTENT

Form of classes - lecture		**Number of hours**
Lec 1	Artificial Intelligence – basic concepts, research area, application area	2
Lec 2	Introduction to nature inspired methods – evolutionary computation in pill	2
Lec 3	Constraint satisfaction Problems – problem formulation, methods	2
Lec 4	Planning task as an example of search of state space – Forward State Propagation, backward State Propagation	2
Lec 5	Search methods	2
Lec 6	Games – game tree, MINMAX algorithm, Alpha-beta pruning	2
Lec 7	Supervised and unsupervised learning – idea, examples, selected methods	4
Lec 8	Role of knowledge in computer systems. Knowledge Based Systems and Expert Systems	2
Lec 9	Knowledge representation methods	2
Lec 10	Knowledge processing – Forward Chaining and Backward Chaining	2
Lec 11	Imprecise knowledge. Using probability calculus; Certainty Factor	2
Lec 12	Imprecise knowledge – fuzzy logic inference and other approaches	2
Lec 13	Building expert systems. Knowledge gathering form experts and data	2
Lec 14	Summary of the course. History and perspectives of AI	2
	Total hours	30

Form of classes - class		**Number of hours**
Cl 1		
Cl 2		
Cl 3		
Cl 4		
..		
	Total hours	

Form of classes - laboratory	**Number of hours**

Lab 1	General information, requirements, introduction to the first exercise (Exercise 1)	2
Lab 2	Using evolutionary computation to selected problem solving (Exercise 1)	6
Lab 3	Constraint satisfaction problem – experimental comparison of two methods (Exercise 2)	8
Lab 4	Game playing using selected game (Exercise 3)	6
Lab 5	Pattern recognition using selected method of machine learning (Exercise 4)	6
Lab 6	Summing the exercises	2
	Total hours	30

Form of classes - project		**Number of hours**
Proj 1		
Proj 2		
Proj 3		
Proj 4		
…		
	Total hours	

Form of classes - seminar		**Number of hours**
Sem 1		
Sem 2		
Sem 3		
…		
	Total hours	

TEACHING TOOLS USED
N1. Projector, slides presentations N2. E-learning system used for the publication of teaching materials N3. Computers in laboratory N4. Discussions

EVALUATION OF SUBJECT EDUCATIONAL EFFECTS ACHIEVEMENT

Evaluation (F – forming (during semester), P – concluding (at semester end)	Educational effect number	Way of evaluating educational effect achievement
F1 Presentation of the 1st laboratory exercise.	PEK_W01; PEK_U02;	Evaluation of Exercise 1; student can receive maximum 10 points.
F2 Presentation of the 2nd laboratory exercise.	PEK_W01; PEK_U02;	Evaluation of Exercise 2; student can receive maximum 10 points.
F3 Presentation of the 3rd laboratory exercise.	PEK_W01; PEK_U02;	Evaluation of Exercise 3; student can receive maximum 10 points.

F4 Presentation of the 4th laboratory exercise.	PEK_W01; PEK_U02;	Evaluation of Exercise 4; student can receive maximum 10 points.
F5 During the classes will be two announced quizzes corresponding to the content of current carried out the exercise.	PEK_W01; PEK_U01; PEK_U02;	Student can receive 8 point max. For each quiz
P1 The final grade of the laboratory	PEK_W01; PEK_W02; PEK_U02;	The final evaluation will be issued in accordance with the following scale: 0 - 28: 2.0 29 - 35: 3.0 36 - 40: 3.5 41 - 45: 4.0 46 - 50: 4.5 51 - 56: 5.0 Two unexcused absences are allowed. For each subsequent absence grade is reduced by 0.5.
P2 The final grade of the lecture	PEK_W01; PEK_W02; PEK_W03; PEK_W04; PEK_U01;	Exam. The exam is a written exam, checking knowledge of the lecture. It consists of open-ended questions, with known points for each. The student to pass the course should obtain more than 50% of all possible points (50%+1 point). % of points: grade [0%, 50%]: 2.0 [50%+1 point, 60%): 3.0 [60%, 70%): 3.5 [70%, 80%): 4 [80%, 90%): 4.5 [90%, 100%]: 5.0 Final grade for the course is an average from both parts – laboratory and lecture, both have to be positive
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PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

[1] Artificial Intelligence and Expert Systems for Engineers. by C.S. Krishnamoorthy; S. Rajeev. CRC Press, CRC Press LLC, ISBN: 0849391253 Pub Date: 08/01/96

[2] Clever Algorithms: Nature-Inspired Programming Recipes. © Copyright 2011 Jason Brownlee. Some Rights Reserved. First Edition. LuLu. January 2011 ISBN: 978-1-4467-8506-5

[3]

[4]

SECONDARY LITERATURE:

[1] Russel S.J., Norvig Peter, Artificial Intelligence. A Modern Approach. Prentice Hall Series in Artificial Intelligence, 1995 (or a newel issue)

[2] MITCHELL TOM M., Machine Learning. McGraw-Hill companies, Inc., 1997.

[3] JIAWEI HAN: Data mining : concepts and techniques. Morgan Kaufmann Publishers, 2000

SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)

Halina Kwaśnicka halina.kwasnicka@pwr.wroc.pl

MATRIX OF CORRELATION BETWEEN EDUCATIONAL EFFECTS FOR SUBJECT
Introduction to Artificial Intelligence
AND EDUCATIONAL EFFECTS FOR MAIN FIELD OF STUDY
……Computer Science..
AND SPECIALIZATION ……..

Subject educational effect	Correlation between subject educational effect and educational effects defined for main field of study and specialization (if applicable)**	Subject objectives***	Programme content***	Teaching tool number***
PEK_W01	K1INF_W17; K1INF_W15;	C1, C2, C3	W1-W5	N1, N3
PEK_W02	K1INF_W17; K1INF_W15;	C1, C2, C3	W6-W8	N1, N3
PEK_W03	K1INF_W17; K1INF_W15; K1INF_W16	C1, C2, C3	W9,W10	N1, N3
PEK_W04	K1INF_W17; K1INF_W15; K1INF_W16	C1, C2, C3	W11-W15	N1, N3
PEK_U01 (skills)	K1INF_U15; K1INF_U16;	C3	L1-L15;W1-W15	N1,N2,N3
PEK_U02	K1INF_U15; K1INF_U16;	C2, C3	L1-L15	N2,N3
PEK_U03	K1INF_U15; K1INF_U16;	C2, C3	L1-L15	N2,N3
PEK_K01 (competences)				
PEK_K02				
…				

** - enter symbols for main-field-of-study/specialization educational effects
*** - from table above