Course Syllabus

Course from study programme for the cycle: 2022/2023

I. General Information

Course name	Artificial intelligence
Programme	Informatics
Level of studies (BA, BSc, MA, MSc, long-cycle MA)	BA
Form of studies (full-time, part-time)	full-time
Discipline	Informatics
Language of instruction	English

Course coordinator/person responsible	dr hab. Ryszard Kozera

Type of class *(use only the types mentioned below)*	Number of teaching hours	Semester	ECTS Points
lecture	30	IV	5
tutorial			
classes			
laboratory classes	30	IV	
workshops			
seminar			
introductory seminar			
foreign language classes			
practical placement			
field work			
diploma laboratory			
translation classes			
study visit			

Course pre-requisites	W1. Logic. Propositional logic. Predicate logic. W2. Linear algebra and analytic geometry. W3. Discrete mathematics. W4. Introduction to computer science.

II. Course Objectives

C1. Familiarize students with the basics of proving the truth of sentences and formulas, truth table, application of inferences and refutation in the area of artificial intelligence
C2. Familiarize students with declarative programming in a selected programming language
C3. Familiarize students with automation of theorem proving.
C4. Exercises with documentation

C5. Application of artificial intelligence methods

III. Course learning outcomes with reference to programme learning outcomes

Symbol	Description of course learning outcome	Reference to programme learning outcome
KNOWLEDGE		
W_01	The student understands the meaning of computer science in the area of artificial intelligence	K_W01, K_W10
W_02	The student has a basic knowledge in the area of artificial intelligence	K_W06, K_W10
SKILLS		
U_01	The student has the ability to search and to use knowledge in order to solve defined informatics problems (especially in the area of AI) using documentation, help files, Internet and literature	K_U02
U_02	The student is able to use specialized vocabulary in the area of computer science and artificial intelligence	K_U04
U_03	The student is able to apply basic recursive algorithms, searching algorithms, sorting algorithms and implementing them in declarative programming language and chosen programming environment.	K_U09
U_4	The student can apply data structures, implement data structures and use them.	K_U10
U_5	The student is able to use basic issues of artificial intelligence	K_U16
U_6	Jest gotowy do oceny poziomu swojej wiedzy i umiejętności oraz krytycznie ocenia odbierane treści	K_U23
SOCIAL COMPETENCIES		
K_01	Is ready to assess the level of his or her knowledge and skills. The student can conduct a critical evaluation of the received information.	K_K01

IV. Course Content

1 Introduction to artificial intelligence.
2 Propositional logic in artificial intelligence.
3 Predicate logic in artificial intelligence.
4 Unification algorithm.
5 Programming in Prolog. Lists.
6 Herbrand's theorem.
7 Searching nad SLD trees.

V. Didactic methods used and forms of assessment of learning outcomes

Symbol	Didactic methods *(choose from the list)*	Forms of assessment *(choose from the list)*	Documentation type *(choose from the list)*

KNOWLEDGE			
W_01	- Laboratory analysis - Discussion, - Conventional lecture, - Conversational lecture, - Problem lecture	- written exam, test, - preparation for classes	- written work, - paper printout, - protocol
W_02	- Laboratory analysis - Discussion, - Conventional lecture, - Conversational lecture, - Problem lecture	- written exam, test, - preparation for classes	- written work, - paper printout, - protocol
SKILLS			
U_01, U_02, U_03, U_04, U_05, U_06	- Laboratory classes, - Practical classes, - Discussion, - Project-based learning - design thinking	- written exam, test, - project, - preparation for classes	- written work, - folder of files, - protocol,
SOCIAL COMPETENCIES			
K_01	- Laboratory classes, - Discussion, - Project-based learning - design thinking	- written exam, test, - project, - work and activity during laboratories and lectures	- register of bonus points, - written work, - folder of files, - protocol,

VI. Grading criteria, weighting factors.....

CLASSES:

Passing the classes - test (50% of final evaluation) after the half semester. Group project to complete (50% of final evaluation).

Grading scale: below 50% fail (2.0).

Detailed assessment rules are given to students with each subject edition.

LECTURE:

Written exam (for students which pass classes).

Grading scale: 50%-57% sufficient (3.0), 58%-64% satisfactory (3.5), 65%-72% good (4.0), 73%-80% very good (4.5), above 80% excellent (5.0), below 50% fail (2.0)

VII. Student workload

Form of activity	Number of hours
Number of contact hours (with the teacher)	Lecture 30, Classes 30, Consultations 30,
Number of hours of individual student work	Preparation for classes 30, Studying literature 10,

	Preparation for the test and exam 20,

VIII. Literature

Basic literature
1. R. Kozera, "Artificial Intelligence and Logic Programming" - wykład 2. G. Royle, "Logic programming", 1999 3. M. Ben-Ari, „Mathematical Logic for Informatics”, 2006
Additional literature
1. J. Wielemaker, "SWI Prolog 2.7 Reference Manual", Updated for version 2.7.14, September 1996, University of Amsterdam, Dept. of Social Science Informatics 2. SWI Prolog Documentation, link: swi-prolog.org (16.12.2017) 3. James Lu, Jeru d J. Mead, „Prolog. A Tutorial Introduction”, Computer Science Department Bucknell University, Lewisburg, PA 17387. 4. Leon S. Sterling, Ehud Y. Shapiro, „The Art of Prolog, Second Edition. Advanced Programming Techniques”, MIT Press, 1994 5. William F.Clocksin, Christopher S. Mellish, „Programming in Prolog. Using ISO Standard. Fifth Edition”, Springer-Verlag Berlin Heidelberg 2003