

SYLLABUS

ARTIFICIAL INTELLIGENCE

1. Information on academic programme

1.1. University	„1 Decembrie 1918” University of Alba Iulia
1.2. Faculty	Faculty of Informatics and Engineering
1.3. Department	Informatics, Mathematics and Electronics
1.4. Field of Study	Computer Science
1.5. Cycle of Study	Undergraduate
1.6. Academic programme / Qualification	Computer Science

2. Information of Course Matter

2.1. Course		Artificial intelligence		2.2. Code		CSE 301	
2.3. Course Leader				Muntean Maria-Viorela			
2.4. Seminar Tutor				Muntean Maria-Viorela			
2.5. Academic Year	III	2.6. Semester	I	2.7. Type of Evaluation (E – final exam/ CE - colloquy examination / CA -continuous assessment)	CE	2.8. Type of course (C- Compulsory, Op – optional, F - Facultative)	C

3. Course Structure (Weekly number of hours)

3.1. Weekly number of hours	4	3.2. course	2	3.3. seminar, laboratory	2
3.4. Total number of hours in the curriculum	56	3.5. course	28	3.6. seminar, laboratory	28
Allocation of time:					Hours
Individual study of readers					40
Documentation (library)					20
Home assignments, Essays, Portfolios					30
Tutorials					2
Assessment (examinations)					2
Other activities					-

3.7 Total number of hours for individual study	94
3.8 Total number of hours in the curriculum	56
3.9 Total number of hours per semester	150
3.10 number of ECTS	6

4. Prerequisites (where applicable)

4.1. curriculum-based	-
4.2. competence-based	-

5. Requisites (where applicable)

5.1. course-related	Room equipped with video projector / board / Microsoft Teams Platform
5.2. laboratory-based	Laboratory – computers, Internet access / Microsoft Teams Platform

6. Specific competences to be acquired (chosen by the course leader from the programme general competences grid)

Professional competences	
Transversal competences	

7. Course objectives (as per the programme specific competences grid)

7.1 General objectives of the course	- <i>Technical equipment: laptop, video projector</i> - <i>For students: course support in editable format</i>
7.2 Specific objectives of the course	- <i>Technical equipment: laptop, video projector</i>

8. Course contents

8.1 Course (learning units)	Teaching methods	Remarks
1. INTRODUCTION	<i>Lecture, conversation, exemplification</i>	2h
2. SOLVING IA PROBLEMS. SEARCH METHODS. ALGORITHMS	<i>Lecture, conversation, exemplification</i>	2h
3. PROBLEM SOLVING STRATEGIES	<i>Lecture, conversation, exemplification</i>	2h
4. KNOWLEDGE REPRESENTATION MODELS. FIRST-ORDER LOGIC.	<i>Lecture, conversation, exemplification</i>	2h
5. DECISION RULES MODEL	<i>Lecture, conversation, exemplification</i>	2h
6. THE STRUCTURED KNOWLEDGE MODEL	<i>Lecture, conversation, exemplification</i>	2h
7. APPROXIMATE REASONING. NOTIONS OF FUZZY SET THEORY	<i>Lecture, conversation, exemplification</i>	2h
8. PLANNING AND MACHINE LEARNING	<i>Lecture, conversation, exemplification</i>	2h
9. THEORETICAL FUNDAMENTALS OF ARTIFICIAL NEURONAL NETWORKS	<i>Lecture, conversation, exemplification</i>	2h
10. RECURRENT NEURONAL NETWORKS. SELF-ORGANIZING MAPS. UNSUPERVISED LEARNING	<i>Lecture, conversation, exemplification</i>	2h
11. SELF-ORGANIZING NEURAL NETWORKS (KOHONEN). DEEP-LEARNING	<i>Lecture, conversation, exemplification</i>	2h
12. EXPERT SYSTEMS	<i>Lecture, conversation, exemplification</i>	2h
13. NEURAL NETWORKS APPLICATIONS	<i>Lecture, conversation, exemplification</i>	4h
1. ARTIFICIAL INTELLIGENCE: An Essential Beginner's Guide to AI, Machine Learning, Robotics, The		

Internet of Things, Neural Networks, Deep Learning, Reinforcement Learning, and Our Future, Neil WILKINS (2019), Autori: WILKINS, Neil, ISBN: 9781950922512

2. DOMINANT ALGORITHMS TO EVALUATE ARTIFICIAL INTELLIGENCE: FROM THE VIEW OF THROUGHPUT MODEL / Waymond RODGERS (2022), Autori: RODGERS, Waymond; ISBN: 9789815049565

3. Russell, Stuart J., Norvig, Peter, Artificial Intelligence: A Modern Approach , 1995.

Laboratories	Teaching methods	
1. Search trees. Heuristic search. Classic examples of smart games.	<i>Project-work, computer-based activities, laboratory activities</i>	2h
2. First-order logic examples.	<i>Project-work, computer-based activities, laboratory activities</i>	2h
3. Software applications in the field of Artificial Intelligence. Decision rules	<i>Project-work, computer-based activities, laboratory activities</i>	6h
4. Software applications in the field of Artificial Intelligence. Fuzzy systems	<i>Project-work, computer-based activities, laboratory activities</i>	6h
5. Software applications in the field of Artificial Intelligence. Intelligent agent systems.	<i>Project-work, computer-based activities, laboratory activities</i>	8h
6. Software applications in the field of Artificial Intelligence. Neural networks	<i>Project-work, computer-based activities, laboratory activities</i>	2h
7. Project presentation and evaluation	<i>Project-work, computer-based activities, laboratory activities</i>	2h

References

1. ARTIFICIAL INTELLIGENCE WITH PYTHON: Your complete guide to building intelligent apps using Python 3.x, Alberto ARTASANCHEZ; Prateek JOSHI (2020), Autori: ARTASANCHEZ, Alberto; JOSHI, Prateek, Editia a doua, ISBN: 9781839219535
2. https://www.swi-prolog.org/pldoc/doc_for?object=manual
3. <https://sicstus.sics.se/sicstus/docs/latest4/html/sicstus.html/>
4. <https://www2.cs.sfu.ca/CourseCentral/310/pwfong/Lisp/>
5. <https://common-lisp.net/tutorials>

1. Corroboration of course contents with the expectations of the epistemic community’s significant representatives, professional associations and employers in the field of the academic programme

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2. Assessment

Activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of final grade
10.4 Course	<i>Final evaluation</i>	<i>Written evaluation</i>	50%
10.5 Seminar/laboratory	<i>Laboratory activities portfolio</i>	<i>Practical evaluation</i>	50%
10.6 Minimum performance standard: minimum 5 at written evaluation and minimum 5 at practical evaluation			

Submission date

Course leader signature

Seminar tutor signature

Date of approval by Department members

Department director signature
