Basic data of the subject	
Academic unit:	**Faculty of Engineering and Informatics** **Applied Informatics**
Title of the subject:	**Artificial Intelligence**
Level:	**Bachelor**
Course Status:	**Obligatory**
Year of studies:	**III**
Number of hours per week:	**3**
Value of Credits - ECTS:	**5**
Time / location:	
Course lecturer:	**Prof.Ass.Dr.Bashkim Çerkini**
Contact details:	Bashkim.cerkini@ushaf.net
Course Description:	*This course provides an initial study of modern Artificial Intelligence techniques and applications. The course will cover a wide range of conceptual approaches, from combinatorial research to probabilistic reasoning and machine learning, as well as a wide range of applications, from understanding natural language to computer vision.*
Objectives of the course:	*The purpose of Artificial Intelligence (AI) is to design agents who can behave rationally in the real world by sensing their environment, planning their goals, and acting optimally to achieve those goals. Lectures will emphasize no not only the technical concepts but also the history of the ideas behind them.*
Expected learning outcomes:	*Upon completion of this course the student will be able to:* • *Understand the foundations, evolution, and concepts of Artificial Intelligence (AI)* • *Identify and describe the different models in AI, their differences.* • *Familiar with key technologies and standards in the field of AI* • *Describe the motivation, current situation and future trends in AI* • *Apply and practice learning through project forms and / or case studies.*

Contribution to the student load (which must correspond with learning outcomes)			
Activity	**Hour**	**Day/Week**	**In total**
Lectures with numerical exercises	3	15	45
Internship			
Contacts with teacher / consultations			
Field exercises			
Midterm, seminars and projects.	3	2	6
Homework			
Self-learning time student (at the library or	3	15	45

at home)			
Final preparation for the exam	7	2	14
Time spent on evaluation (tests, quiz and final exam)			
Projects and presentations.	3	5	15
Total			**125**

Teaching methodology:	*The course is a combination of lectures, discussions, conversations, numerical and laboratory exercises, assignments are presented by the professor of the subject and the assistant in the laboratory.*
Assessment methods:	*Test 1, Test 2, Attendance and Activity.* *Final exam: 100%*
The ratio of theory and practice:	*80% theory with exercises and 20% laboratory work.*
Literature	
Basic Literature:	1. *Stuart Russell and Peter Norvig, Artificial Intelligence: A Modern Approach, 3rd edition, Prentice Hall, 2010.* 2. *David L. Poole and Alan K. Mackworth, Python code for Artificial Intelligence: Foundations of Computational Agents, 2018.*
Additional Literature:	1. *David L. Poole and Alan K. Mackworth, Foundations of Computational Agents 2nd edition, Cambridge University Press, 2017.* 2. *Stuart Russell and Peter Norvig, Artificial Intelligence: A Modern Approach, 2rd edition, Prentice Hall, 2005.)*
Designed learning plan	
Week:	**Lectures and exercises to be held**
Week one:	*Introduction to the syllabus (chapter 1)* *Introduction* *Artificial Intelligence* *Questions from chap. 1 (literature 1)* *Laboratory exercises from chap. 1 (literature 2)*
Week two:	*Concepts and background (chapter 1)* *Questions from chap. 1 (literature 1)* *Laboratory exercises from chap. 1 (literature 2)*
Week three:	*Agents (Chapter 2)* *Questions from chap. 2 (literature 1)* *Laboratory exercises from chap. 2 (literature 2)*
Week four:	*Research (Chapter 3)* *Introduction* *Questions from chap. 3 (literature 1)* *Laboratory exercises from chap. 2 (literature 2)*

Week five:	*Problem solving through research (chapters 3.1-3.4)* *Uninformed search* *Questions from chap. 3 (literature 1)* *Laboratory exercises from chap. 3 (literature 2)*
Week six:	*Problem solving through search (chapters 3.5-3.6)* *Informed search* *Questions from chap. 3 (literature 1)* *Laboratory exercises from chap. 3 (literature 2)*
Week seven:	*Problem solving through search (Chapter 6)* *Restriction compliance problems* *Questions from chap. 6 (literature 1)* *Laboratory exercises from chap. 4 (literature 2)*
Week eight:	*First Evaluation*
Week nine:	*Problem solving through search (Chapter 6)* *Restriction Completion Problems (cont.)* *Questions from chap. 6 (literature 1)* *Laboratory exercises from chap. 5 (literature 2)*
Week ten:	*Planning (Chapter 10)* *Questions from chap. 10 (literature 1)* *Laboratory exercises from chap. 5 (literature 2)*
Week eleven:	*Opposing search (chapters 5.1-5.4)* *Questions from chap. 5 (literature 1)* *Laboratory exercises from chap. 6 (literature 2)*
Week twelve:	*Stochastic search and stochastic games (chapters 5.5-5.6)* *Learned evaluation functions* *Questions from chap. 5 (literature 1)* *Laboratory exercises from chap. 6 (literature 2)*
Week thirteen:	*Game theory (chapters 17.5, 17.6)* *Questions from chap. 17 (literature 1)* *Laboratory exercises from chap. 7 (literature 2)*
Week fourteen:	*Probability (Chapter 13)* *Questions from chap. 13 (literature 1)* *Laboratory exercises from chap. 8 (literature 2)*
Week fifteen:	*Second Evaluation*
Academic policies and rules of conduct	
Regular attendance of lectures and exercises is necessary, as well as active participation with discussion and solution of tasks. Not impeding the progress required for learning using mobile phones turned off or in silent mode.	