Arab Academy for Science and Technology and Maritime Transport
Computer Science Curriculum
Course Syllabus

Course Code: CS468	**Course Title:** Advanced Artificial Intelligence	**Classification:** E	**Coordinator's Name:** Prof. Dr. Aliaa Youssif	**Credit Hours:** 3
Pre-requisites: CS366 (Introduction to Artificial Intelligence)	**Co-requisites:** None	**Schedule:** Lecture: 2 hours Tutorial-Lab: 2 hours		
Office Hours:				

Course Description:
This course allows the introduction of material relating to Current advances in artificial intelligence topics, and technology. The course will focus on artificial neural networks, expert systems and machine learning, which are essential components of computational and statistical methods, and theoretical computer science. The course will also discuss recent applications of machine learning, such as data mining, face and speech recognition, and text and web data processing.

Textbook:
Russell S. and Norvig P., *Artificial Intelligence: A modern Approach*, Prentice-Hall, 3rd Edition.

References:

- Tom Mitchell, *Machine Learning*, McGraw-Hill.
- Nils J. Nilsson, Artificial Intelligence: A New Synthesis, Morgan Kaufmann.
- George F. Luger, Artificial Intelligence, 6th edition, Addison-Wesley.
- Michael Negnevitsky, Artificial Intelligence, 2nd edition, Addison-Wesley.

Course Objective/Course Learning Outcome:	Contribution to Program Student Outcomes:
Expert Systems	
Machine Learning: Classification, Ensemble Methods, Clustering, Decision Tree, and Association Rules.	(SO1) Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
Intelligent Mobile Agents	
Natural Language Processing	
AI Applications: image and speech recognition, data mining, and web mining, and	(SO2) Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

Implementing software applications, Design intelligent systems that can adapt to both uncertainties and changes in their environments.	(SO6) Apply computer science theory and software development fundamentals to produce computing-based solutions.
Understand AI as the design of agents.	
Course Outline: 1. Expert Systems 2. Introduction To Machine Learning 3. Data Preprocessing 4. Machine Learning: Supervised Learning 5. Machine Learning: Advanced Supervised Learning	6. Machine Learning: Unsupervised Learning 7. Machine Learning: Advanced Unsupervised Learning 8. Machine Learning: Applications 9. Software Agents

Grade Distribution:

7th Week Assessment (30%)

12th Week Assessment (20%)

Year Work (10%)

Final Exam (40%)

Policies:

Attendance:
AASTMT Education and Study Regulations (available at aast.edu)

Academic Honesty:
AASTMT Education and Study Regulations (available at aast.edu)

Late Submission:
Late submissions are graded out of 75% (1 week late), 50% (2 weeks late), 25% (3 weeks late), 0% (more than 3 weeks late)