Jordan University of Science and Technology

Faculty of Engineering

Mechanical Engineering Department

ME781 Artificial Intelligent Systems - JNQF Level: 9

Second Semester 2022-2023

Course Catalog
3 Credit Hours. This course will introduce students to the basic concepts regarding soft computing approaches used to enhance artificial intelligence systems and incorporate human knowledge in computing processes. Special emphasis will be placed on fuzzy logic, neural networks, hybrid systems, and their application in designing intelligent systems, Deep Learning, and Data Science with Application.

Text Book	
Title	Neuro-fuzzy and soft computing: a computational approach to learning and machine intelligence
Author(s)	1. Jyh-Shing Roger Jang, Chuen-Tsai Sun, Eiji Mizutani
Edition	1st Edition
Short Name	Ref #1
Other Information	

Instructor	
Name	**Dr. AHMAD BATAINEH**
Office Location	-
Office Hours	Sun : 08:00 - 09:00 Mon : 08:00 - 10:00 Tue : 08:00 - 09:00 Wed : 08:00 - 10:00
Email	ambataineh2@just.edu.jo

Class Schedule & Room

Section 1:
Lecture Time: Mon : 14:30 - 17:30
Room: M2006

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Week 1	Introduction to AI and soft computing methods	
Week 2	Introduction to Fuzzy Set Theory	
Week 3	Generalized Modus Ponens (GMP), Mamdani vs. Sugeno Reasoning	
Week 4	Control using Fuzzy Logic	
Week 5	Apply using Matlab	
Week 6	Introduction to Neural networks	
Week 7	Supervised, Unsupervised, and Reinforcement Learning	
Week 8	Feedforward Neural Networks	
Week 9	Mid-Term Exam	
Week 10	Recurrent neural networks	
Week 11	Deep neural networks	
Week 12	Apply Neural Networks using Matlab	
Week 13	ANFIS	
Week 14	Genetic Algorithms	
Weeks 15, 16	Term Project Presentations	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Demonstrate a sound understanding of the main techniques and algorithms in AI and its applications in Engineering Sciences. [1SLO1, 1SLO6] [1L9K1, 1L9S2]	35%	
Solve linear and nonlinear problems by using different AI methods. [1SLO1, 1SLO6] [1L9K3, 1L9S2]	35%	
Use MATLAB and its specialized Toolboxes to solve AI problems. [1SLO7] [1L9S1]	30%	

Relationship to Program Student Outcomes (Out of 100%)																
A	B	C	D	E	F	G	H	I	J	K	SLO1	SLO2	SLO3	SLO4	SLO5	SLO6	SLO7
											35					35	30

Relationship to NQF Outcomes (Out of 100%)			
L9K1	L9K3	L9S1	L9S2
17.5	17.5	30	35

Policy	
Attendance	University policy will be followed (allowed absence is less than 20%)

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