



Course:	Artificial Intelligence – 0908531 (3 Credit hours–Core course)
Instructor:	Dr. Adham Alsharkawi Telephone: 5355000 ext 23030 Email: sharkawi.adham@gmail.com <i>Office Hours: Sun & Tue: 10.00-12.00; Mon & Wed: 09.30:11.00</i>
Course Website:	http://elearning.ju.edu.jo
Catalog Data:	The students will be introduced to the general area of artificial intelligence and how it can be used to solve engineering problems more efficiently than conventional methods. Then the main areas of artificial neural networks, fuzzy logic and genetic algorithms are presented with applications in modeling and control.
Prerequisites by Course:	Automatic Control – 0908353.
Prerequisites By Topic:	Basic knowledge of modeling and control systems.
Textbook:	“Artificial Intelligence: A Guide to Intelligent Systems”, Michael Negnevitsky, 2nd edition, Addison Wesley.
References:	<ul style="list-style-type: none">• “A first course in fuzzy and neural control”, Hung T. Nguyen et al., Chapman & Hall/CRC, 2003.• “An introduction to fuzzy control”, D. Driankov, H. Hellendoorn, M. Reinfrank, Springer Verlag, 1993.• “An introduction to genetic algorithms”, Mitchell M., MIT Press; 1998.
Schedule & Duration:	14 Weeks, 42 lectures (50 minutes each) plus exams.
Minimum Student Material:	Text book, class handouts, and an access to personal computer with MATLAB.
Instructional Methods	<ol style="list-style-type: none">1. Lecture/problem solving sessions.2. Case studies using MATLAB.3. Classworks and homeworks.
Minimum College Facilities:	Classroom with whiteboard and projection display facilities, library, and computational facilities with MATLAB and Simulink.
Course Objective:	The primary objective of this course is to introduce the basic principles, techniques, and applications of Artificial Intelligence. Some reliance will be placed on the use of Matlab and Simulink to reinforce student understanding.

Course Learning Outcomes and Relation to ABET Student Outcomes:

Upon successful completion of this course, a student should:

1. Know how to design an artificial intelligence-based controller. [-]
2. Know the different types of artificial intelligence tools. [-]
3. Improve presentation skills, report writing skills, teamwork skills and problem-solving skills due to the work on the projects in this course. [7]
4. Understand the principle of operation of artificial neural networks, fuzzy logic and genetic algorithms. [-]
5. Know how to use Matlab and Simulink to develop and conduct appropriate experimentation, analyze, and interpret data related to fuzzy logic, artificial neural networks and genetic algorithms. [-]

Course Topics:

	Hrs
Introduction to Artificial Intelligence (AI)	2
Neural Networks	10
Fuzzy Logic	10
Genetic Algorithms	10
Applications in modeling and control	4

Ground Rules:

- **Attendance:**

Students are expected to attend EVERY CLASS SESSION and they are responsible for all material, announcements, schedule changes, etc., discussed in class. The university policy regarding the attendance will be strictly adhered to.

- **Make up Examinations**

There will be no make up exams for any exam that will be taken during the course. Exceptions to this rule is restricted only to the following cases:

1. Death of only first order relatives (father, mother, sister, or brother).
2. Hospital entry (in-patient) during thr time of the examination.

Any other cases will be given the zero mark in the corresponding exam.

- **Special Notes**

1. Seating plan will be as given in the attendance sheet.
2. Students creativity is welcomed and will receive additional marks

Assessments:

Exams, Quizzes, Projects, and Assignments.

Grading policy:

Projects	15 %
Quizzes	5 %
Midterm Exam	30 %
Final Exam	50 %
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Total	100%

Last Updated:

September, 2019