University / Academy: Menoufia University

College / Institute: Faculty of Electronic Engineering

Department: Computer Science and Engineering

Course Specification

1- Course basic information:		
Course Code: CSE 370	**Course Title: Artificial Intelligence Technologies**	**Academic year: 2011/2012** **Level (3) – Semester : 2**
Faculty requirement	**Teaching hours: Lecture** 2 **Tutorial** 2 **Lab**	

2- Aim of the course	• To introduce the students some Artificial Intelligence Technologies. • To learn the basic Artificial Intelligence Technologies. • To develop the student's skills in Artificial Intelligence for use in different applications.
3- Intended Learning Outcomes:	
A- Knowledge and Understanding:	a1. Concepts and theories of mathematics and sciences, appropriate to the Artificial Intelligence. a2. Basics of information and communication technology (ICT) a3. Characteristics of engineering materials related to the Artificial Intelligence especially robotics. a5. Methodologies of solving engineering problems, data collection and interpretation a6. Quality assurance systems, codes of practice and standards, health and safety requirements and a15. Principles of Analyzing and design of electronic circuits and components.

B- Intellectual Skills	b1. Select appropriate mathematical and computer-based methods for modeling and analyzing problems. b2. Select appropriate solutions for engineering problems based on analytical thinking. b3. Think in a creative and innovative way in problem solving and design. b8. Select and appraise appropriate ICT tools to a variety of engineering problems. b14. Select the appropriate mathematical tools, computing methods, design techniques for modeling and analyzing computer systems. b15. Select, synthesize, and apply suitable IT tools to computer engineering problems. b16. Proposing various computer-based solutions to business system problems. b19. Innovating solutions based on non-traditional thinking and the use of latest technologies
C- Professional Skills	c1. Apply knowledge of mathematics, science, information technology, design, business context and engineering practice integrally to solve engineering problems. c4. Practice the neatness and aesthetics in design and approach. c6. Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs. c10. Apply quality assurance procedures and follow codes and standards. c11. Exchange knowledge and skills with engineering community and industry. c12. Prepare and present technical reports. c15. Write computer programs on professional levels achieving acceptable quality measures in software development. c16. Conducting user support activities competently.

D- General Skills	d1. Collaborate effectively within multidisciplinary team. d2. Work in stressful environment and within constraints. d3. Communicate effectively. d6. Effectively manage tasks, time, and resources. d7. Search for information and engage in life-long self learning computer science and engineering. d8. Acquire entrepreneurial skills. d9. Refer to relevant literatures
4- Course Contents	-Intelligent software agents and multi-agent systems - Artificial intelligence programming in Lisp or Java - Decision making, systems, modeling and support; Knowledge based decision support Fundamentals of expert systems - Basic concepts of fuzzy set theory; fuzzy decision making; Basic concepts of neural networks - Hybrid intelligent systems - Basic concepts of genetic algorithms: evolutionary algorithms, evaluation, optimization problems.
5- Teaching and Learning Methods	- **Lectures** - **Tutorials** - **Research assignments**
6- Teaching and Learning Methods for disable students	**NA**
7- Student Assessment	
a- Assessment Methods	**- Weekly sheet exercises at class room** **- Quizzes** **- Midterm, and final exams**
b- Assessment Schedule	**- Exercise sheet/ Lab assignment : Weekly** **- Quizz-1: Week no 4** **- Mid-Term exam: Week no 8** **- Quizz-2: Week no 11** **- Final – term examination: Week no 15**
c- Weighting of Assessment	**- Class tutorial and quizzes : …10… %** **- Mid-term examination: …20… %**

	- Case study and/or practical exam: …10… **%** **- Final – term examination:** …60… **%** **- Other types of assessment:** …0… **%** **Total 100 %**
8- List of text books and references:	
a- Course notes	
b- Text books	1. Russell, S.J. and Norvig, P., Artificial Intelligence: A Modern Approach, 2nd Edition Prentice Hall, 2003.
c- Recommended books	1. Elaine Rich, Artificial Intelligence, McGraw-Hill Science/Engineering/Math; 2 Sub edition , 1990.
d- Periodicals, Web sites ……etc	**1- http://www.aaai.org/AITopics/pmwiki/pmwiki.php/AITopics/AIOverview** **2- http://aima.cs.berkeley.edu/ai.html** **3- http://en.wikipedia.org/wiki/Artificial_Intelligence**

Course Contents - ILOs Matrix

Content Topics	Week	A- Knowledge & Understanding	B- Intellectual skills	C- Professional and practical skills	D- General and transferable skills
Intelligent software agents and multi-agent systems -	1,2	a1. a2.	b1. b2.	c1. c4.	d1. d2.
Artificial intelligence programming in Lisp or Java -	3,4	a1. a3.	b1. b3.	c1. c6.	d1. d3.
Decision making systems, modeling and support;	5	a2. a5.	b2. b8.	c4. c10.	d7. d8. d9.
Knowledge based	6,7	a5. a6.	b14. b15.	c11. c12.	d6. d7.

decision support Fundamentals of expert systems -					
Basic concepts of fuzzy set theory; fuzzy decision making;	8, 9	a6. a15.	b16. b19.	c15. c16.	d8. d9.
Basic concepts of neural networks -	10	a2. a5.	b2. b8.	c4. c10.	d7. d8. d9.
Hybrid intelligent systems -	11	a5. a6.	b14. b15.	c11. c12.	d6. d7.
Basic concepts of genetic algorithms:	12	a1. a3.	b1. b3.	c1. c6.	d1. d3.
evolutionary algorithms,	13	a6. a15.	b16. b19.	c15. c16.	d8. d9.
Evaluation optimization problems.	14	a1. a2.	b1. b2.	c1. c4.	d1. d2.

Course coordinator: **Head of Department:**

Dr. Eng. Ahmed Moustafa Elmahalawy **Prof. Nawal Ahmed El-Fishawy**

Date: / /