

University: Alexandria
Faculty: Science
Program: Computer Science

**Form no. (12)
Course Specification**

1- Course Data

Course Code: CS 303	Course Title: Artificial Intelligence	Academic Year/Level: Second level (Second semester)
Specialization: Computer Science	No. of Instructional Units: Lecture <input type="text" value="2"/> Lab <input type="text" value="3"/>	

2- Course Aim	<ul style="list-style-type: none"> • This course is designed to encourage in students a sense of interest for artificial intelligence concept and its application in different contexts • Provide a solid foundation in the major areas of artificial intelligence • Provide education and training of high quality in artificial intelligence
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3- Intended Learning Outcome

a- Knowledge and Understanding	a1. Describe the main concepts, definitions of intelligence systems a2. Review theories and concepts used in artificial intelligence a3. Identify an understanding of the contribution and impacts of artificial intelligence in scientific, social, economic, environmental, political and cultural terms. a4. Intelligence systems and first order logic a5. Neural systems and search algorithms, genetic algorithm and genetic programming a6. Decision tree classification system
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b- Intellectual Skills	<p>b1. Manipulate and apply appropriate theories, principles and concepts relevant to artificial intelligence</p> <p>b2. Critically assess and evaluate the literature within the field of artificial intelligence</p> <p>b3 Deduce and interpret information from a variety of sources relevant artificial intelligence</p>
c- Professional Skills	<p>c1. Plan, design and execute practical activities using techniques and procedures Appropriate to artificial intelligence</p> <p>c2. Execute a piece of independent research using artificial intelligence, computer media and techniques;</p>
d- General Skills	<p>d1. Develop appropriate effective written and oral communication skills relevant to the specific course of artificial intelligence</p> <p>d2. Demonstrate the ability to work effectively as part of a group</p> <p>d3. Solve problems relevant to artificial intelligence using ideas and techniques some of which are at the forefront of the discipline.</p> <p>d4. Solve problems relevant to applications in real life in computer science using old and new languages some of which are at the forefront of the discipline;</p>
4- Course Content	<ul style="list-style-type: none"> • Introduction to artificial intelligence (AI). • Algorithmic vs non algorithmic approach • AI applications and techniques. Problem space and search strategies. • problem and state space, production system, basic control strategies, forward and backwards reasoning, heuristic search. Knowledge representation using predicate logic, rule based production system. • Perception and learning - techniques, constrained satisfaction, Waltz algorithm, neural nets, role learning, learning as classification, learning as problem solving task. • Planning, reasoning under uncertainty. Evolutionary computation. Agents and multiagent systems.

5- Teaching and Learning Methods	Lecturers – Home works - Oral discussion - Quizzes
6- Teaching and Learning Methods for Students with Special Needs	NONE
7- Student Assessment:	
a- Procedures used:	Lecturers – tutorials- homework – oral discussion - Quizzes
b- Schedule:	Mid-Term exam... Week 10 Final exam Week 17
c- Weighing of Assessment:	Term work (exam + home works) 20% Lab exam 10% Oral exam 10% Final exam 60%
8- List of References:	Artificial Intelligence: A modern approach, by Stuart J. Russell, Peter Norvig
a- Course Notes	Course notes provided by the Faculty member of Computer Science Division, Math department, to be handled at the beginning of the semester.

b- Required Books (Textbooks)	Artificial Intelligence: A modern approach, by Stuart J. Russell, Peter Norvig
c- Recommended Books	Artificial Intelligence: A modern approach, by Stuart J. Russell, Peter Norvig
d- Periodicals, Web Sites, ..., etc.	

Course Instructor: Dr. Yasser Fouad

Head of Department: Prof. Dr. Mahmoud El-Alem.

Date: 1/10/2010