

# Course Specifications

<b>Course Title:</b>	Advanced Artificial Intelligent
<b>Course Code:</b>	ICS 433
<b>Program:</b>	Information and Computer Sciences
<b>Department:</b>	CSI
<b>College:</b>	Science in AL Zulfi
<b>Institution:</b>	Majmaah University

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## A. Course Identification

<b>1. Credit hours:</b> 3			
<b>2. Course type</b>			
a.	University <input type="checkbox"/>	College <input type="checkbox"/>	Department <input checked="" type="checkbox"/>
b.	Required <input type="checkbox"/>	Elective <input checked="" type="checkbox"/>	Others <input type="checkbox"/>
<b>3. Level/year at which this course is offered:</b> 7 <sup>th</sup> Level			
<b>4. Pre-requisites for this course (if any):</b> Artificial Intelligence ICS411			
<b>5. Co-requisites for this course (if any):</b> NA			

## 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	48	80 %
2	Blended	6	10 %
3	E-learning	6	10 %
4	Correspondence		
5	Other		

## 7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
<b>Contact Hours</b>		
1	Lecture	30
2	Laboratory/Studio	20
3	Tutorial	10
4	Others (Presentations & group discussions)	
	<b>Total</b>	60
<b>Other Learning Hours*</b>		
1	Study	20
2	Assignments	15
3	Library	10
4	Projects/Research Essays/Theses	5
5	Others (seminars)	
	<b>Total</b>	50

\* The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

## B. Course Objectives and Learning Outcomes

### 1. Course Description

This course offers a thorough overview of multi-agent systems. Their usefulness and internal mechanisms are illustrated through examples from several fields. The underlying techniques and algorithms are described in enough detail to enable students to implement reasonably

complex multi-agent systems in the domain of their choice.

## 2. Course Main Objective

Having successfully completed this course, the student will be able to:

1. Acquire concepts of multi-agent systems and their applications.
2. Develop a deep appreciation of how software agents collaborate.
3. Implement a multi-agent system application.

## 3. Course Learning Outcomes

CLOs		Aligned PLOs
1	<b>Knowledge:</b>	
1.1	Describe the notion of an agent, how agents are distinct from other software paradigms (e.g. objects) and the characteristics of applications that lend themselves to agent-oriented software	a1
1.2	Understand the key issues associated with constructing agents capable of intelligent autonomous action and the main approaches taken to developing such agents	b3
1.3	Analyze the key issues in designing societies of agents that can effectively cooperate to solve problems, including an understanding of the key types of multi-agent interactions possible in such systems	a1, c1
2	<b>Skills :</b>	
2.1	Be familiar with the main application areas of agent-based systems	b3
2.2	Group works and learning time management	c1
2...		
3	<b>Competence:</b>	
3.1		

## C. Course Content

No	List of Topics	Contact Hours
1	Introduction to agents as a paradigm for software engineering	4
2	Agents as a tool for understanding human societies.	8
3	Intelligent autonomous agents, agents and objects, agents and expert systems	8
4	Deductive reasoning agents	8
5	Reactive and hybrid agents	12
6	Agents working together, cooperative distributed problem solving	8
7	Applications of intelligent agents	8
8	Multiagent decision making, multiagent interaction, and making group decision	4
<b>Total</b>		<b>60</b>

## D. Teaching and Assessment

### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.1	Describe the notion of an agent, how agents are distinct from other software paradigms (e.g. objects) and the characteristics of applications that lend themselves to agent-oriented software	Lectures, Lab demonstrations Case studies Individual presentations	Written Exam Homework assignments Class & lab Activities Quizzes
2.0	<b>Skills</b>		
2.1	Be familiar with the main application areas of agent-based systems	Group discussions, Lab demonstrations, Brainstorming Presentations	Home works and assignments
3.0	<b>Competence</b>		
3.1			

## 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	First written mid-term exam	6	10%
2	Second written mid-term exam	12	10%
3	Presentation, class activities, and group discussion	Every week	10%
4	Homework assignments	After Every chapter	10%
5	Practical exam	15	20%
6	Final exam	16	40%
	Total		100%

\*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

## E. Student Academic Counseling and Support

**Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :**

Office hours: Sun: 1-3, Mon. 12-1, Wed. 12-1

Office call: Sun. 12-1 and Wed 9-10

Email: y.qawqzeh@mu.edu.sa

## F. Learning Resources and Facilities

## 1. Learning Resources

<b>Required Textbooks</b>	"An Introduction to Multi-Agent Systems", 2nd ed. (or later ed.). M. Wooldridge (2009). 978-0-470-51946-2
<b>Essential References Materials</b>	Artificial Intelligence: structures and strategies for complex problem solving. George F. Luger (2011). 978-0321545893
<b>Electronic Materials</b>	
<b>Other Learning Materials</b>	Video and presentations that available with the instructor

## 2. Facilities Required

Item	Resources
<b>Accommodation</b> (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms and Laboratories are available at the college of science at Al-Zulfi.
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	Smart Boards, software, data shows and AV technological resources are available.
<b>Other Resources</b> (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	N/A

## G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

## H. Specification Approval Data

<b>Council / Committee</b>	
<b>Reference No.</b>	
<b>Date</b>	