



**University of Tehran**  
**School of Electrical and Computer Engineering**

<b>Course:</b>	<b>8101***</b> Multi Agent Systems										
<b>Course type:</b>	EE*						CE*			Credit: ...	
	Com	E	P	B	Con	D	SW	HW	IT		
	Required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
	Elective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
<b>Level:</b>	Undergraduate <input checked="" type="checkbox"/> Graduate <input type="checkbox"/>										
<b>Co-requisite(s):</b>	Artificial Intelligence										
<b>Prerequisite(s):</b>	none										
<b>Prerequisite by topic:</b>	An overall understanding of Artificial Intelligence										
<b>Textbook(s):</b>	[1] An Introduction to MultiAgent Systems, Michael Wooldridge, John Wiley & Sons, Second Edition, 2009.										
<b>Coordinator:</b>	Fattaneh Taghiyareh, Associate Professor, School of ECE										
<b>Goals:</b>	<ol style="list-style-type: none"> <li>1. To introduce the theory, methods and algorithms of multi-agent systems.</li> <li>2. To give an appreciation for the broad research topics currently being pursued in the field of autonomous agents and multi-agent systems.</li> </ol>										
<b>Outcome:</b>	Upon successful completion of the course, students will be able <ol style="list-style-type: none"> <li>1. Identify and discuss the characteristics of agent-based systems</li> <li>2. Program actual agents in one multi-agent environment.</li> </ol>										
<b>Topics:</b>	<ol style="list-style-type: none"> <li>1. Introduction</li> <li>2. Autonomous agents</li> <li>3. Agent architectures</li> <li>4. Multi-agent systems</li> <li>5. Agent communication</li> <li>6. RoboCup case studies</li> <li>7. Applications: cooperative information gathering and industrial settings</li> <li>8. Distributed rational decision making</li> <li>9. Negotiation and auctions</li> <li>10. Agent modeling</li> <li>11. Multi-agent learning</li> </ol>										
<b>Computer usage:</b>	yes										
<b>Assignments:</b>	4 to 5 Programming assignments										

<b>Projects:</b>	
<b>Grading:</b>	Assignments: 15 % Projects: 30% Quizzes: 5 % Midterm exams: 20% Final exam: 30 %
<b>Further readings:</b>	<ol style="list-style-type: none"> <li>1. Multiagent Systems: Algorithmic, Game-Theoretic, and Logical Foundations, Yoav Shoham and Kevin Leyton-Brown, Cambridge University Press, 2009.</li> <li>2. Gerhard Weiss (Ed.), "Multiagent Systems: A Modern Approach to Distributed Artificial Intelligence." , MIT Press, 1999. ISBN 0-262-23203-0, Chapters of the book that will be totally or partially covered: 1-3, 5-10, 12</li> <li>3. Henderson-Sellers, Brian. and Giorgini, Paolo. Agent-oriented methodologies / Brian Henderson-Sellers, Paolo Giorgini Idea Group Pub., Hershey, PA : 2005</li> </ol>
<b>Prepared by:</b>	Fattaneh Taghiyareh
<b>Date:</b>	1396/09/26

*EE: Electrical Engineering		CE: Computer Engineering	
Com	Communications	SW	Software
E	Electronics	HW	Hardware
P	Power	IT	Information Technology
B	Bioelectronics		
Con	Control		
D	Digital System		