



Ministry of Higher Education and Scientific Research -
Iraq
Al-Mustaqbal University
College of Engineering
Department of Prosthetics and Orthotics Engineering



MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	الذكاء الصناعي		Module Delivery
Module Type	CORE		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	UOMU0103065		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	3	Semester of Delivery	
Administering Department	UOMU0103	College	UOMU01
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor			
Peer Reviewer Name		e-mail	
Review Committee Approval		Version Number	1

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	<ol style="list-style-type: none"> 1. To gain the necessary understanding of the basics of Artificial Intelligence (AI) required in personal and professional life. 2. To develop the necessary skills to solve problems using AI 3. To understand the AI hardware and software 4. To gain an understanding of the basic AI principles 		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The syllabus of the course is aimed to introduce students about the structures and properties of artificial Intelligent, as well as give students enough information about artificial neural networks, genetic algorithm and fuzzy logic system, and their applications with some of software implementations in Matlab programs ..		
Indicative Contents المحتويات الإرشادية	Introduction into Artificial Neural Networks and Historical Background From Biological to Artificial Neuron Activation Functions The McCulloch-Pitts Model Perceptron Using of ANNs ANN Architectures Learning in Neural Networks Neural Network Learning Rules Error Back-propagation Training Algorithm Associative Memories Hopfield and Bidirectional Associative Networks Maxnet and Hamming Net Genetic Algorithm <p style="text-align: right;">Fuzzy Logic Systems</p>		
Learning and Teaching Strategies استراتيجيات التعلم والتعليم			
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are		

interesting to the students. The labs are essential to teach the students how to use AI and its applications to solve different engineering and scientific problems.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	37	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	5% (5)	3, 10	All
	Assignments	2	5% (5)	Continuous	All
	Projects / Lab.	10	10% (10)	Continuous	All
	Report	1	5% (5)	9	All
Summative assessment	Midterm Exam	2hrs	30% (25)	6,12	All
	Final Exam	3hrs	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction into Artificial Neural Networks and Historical Background
Week 2	From Biological to Artificial Neuron and Activation Functions
Week 3	The McCulloch-Pitts Model
Week 4	Perceptron
Week 5	Using of ANNs and ANN Architectures

Week 6	Midterm Exam
Week 7	Learning in Neural Networks
Week 8	Neural Network Learning Rules
Week 9	Error Back-propagation Training Algorithm
Week 10	Associative Memories
Week 11	Hopfield and Bidirectional Associative Networks
Week 12	Midterm Exam
Week 13	Maxnet and Hamming Net
Week 14	Genetic Algorithm
Week 15	Fuzzy Logic Systems

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Introduction to MATLAB
Week 2	Programming in MATLAB
Week 3	Neuron Output and Custom Neural Networks
Week 4	McCulloch and Pitts's Neuron Model using Matlab Neural Networks toolbox
Week 5	Classification of data with a Perceptron
Week 6	Artificial Neural Networks Unsupervised and Supervised Learning Rules
Week 7	Artificial Neural Networks Supervised Learning Rules
Week 8	Multilayer Perceptron Network Training by using Back Propagation
Week 9	Improve Multilayer Perceptron Neural Networks Performance
Week 10	Multilayer Perceptron Network at a surface
Week 11	Associative Memories
Week 12	Hopfield and Bidirectional Associative Networks
Week 13	Maxnet and Hamming Net
Week 14	Genetic Algorithm
Week 15	Fuzzy Logic Systems

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	"Introduction to Artificial Neural Systems", by: Jacek M. Zurada, 1999.	YES (PDF Version)
Recommended Texts	"Fuzzy Control", by: Kevin M. Passino and Stephen Yurkovich, 1998. "Practical Genetic Algorithms", by: Randy L. Haupt and Sue Ellen Haupt, 2004 Complete A+ Guide to IT Hardware and Software	YES (PDF Version)
Websites		

APPENDIX:

GRADING SCHEME				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 – 100	Outstanding Performance
	B - Very Good	جيد جدا	80 – 89	Above average with some errors
	C –Good	جيد	70 – 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 – 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 – 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
<p>Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</p>				



ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي