



Course Weekly Outline

Course Instructor	Assistant Prof. Dr. Hasanen S. Abdullah				
E_mail	ghasanen@yahoo.com				
Title	Intelligent Applications				
Course Coordinator	Software				
Course Objective	1- Design and build practical Expert Systems. 2- Principles, aspects and details of Machine Learning (connectionist). 3- Neural Networks and Genetic Algorithms Details and applications.				
Course Description	1- Expert Systems (Designing, Building, Life Cycle and Explanation Mechanism). 2- Machine Learning 2.1- structure and architecture 2.2- Training and Learning 2.3- Neural Networks examples and applications 2.4- Genetic Algorithms steps with practical applications 2.5- Genetic Programming principles				
Textbook	1. Daniel H. Marcellus, "Expert Systems Programming in Turbo Prolog", prentice Hall (New Jersey).				
References	2. George F. Luger, "Artificial Intelligence Structures and Strategies for Complex Problem Solving", Pearson Education Asia (Singapore), Sixth edition 2009. 3. Alexander I. Galushkin, "Neural Networks Theory", Springer, 2007. 4. S. S. Sivanandam and S. N. Deepa, "Introduction to Genetic Algorithms", Springer, 2008.				
Course Assessment	Term Tests	Laboratory	Quizzes	Project	Final Exam
	(25%)	(20%)	(5%)	----	(50%)
General Notes					



Course weekly Outline

week	Date	Topics Covered	Lab. Experiment Assignments	Notes
1	22/9/2014	Structures of Expert Systems	Text Recognition system (Eliza Program)	
2	29/9/2014	General architecture of Expert Systems	Embedded Systems (The Student Advisor System)	
3	6/10/2014	The Pattern Matching system	The Chemical Synthesis System Program	
4	13/10/2014	Controlling the Reasoning Strategy	Backward Chaining program for Classification	
5	20/10/2014	Controlling the Reasoning Strategy	Forward Chaining program for Classification	
6	27/10/2014	Programs that work under Uncertainty Factor	Application programs	
7	3/11/2014	Approximation Reasoning and Bipolar States	Building Connection Functions	
8	10/11/2014	Systems that Explain their Actions	Causing Functions	
9	17/11/2014	How facility	How facility Program Part	
10	24/11/2014	Why Facility	Why facility Program Part	
11	1/12/2014	Natural Language Processing NLP(Informal Method)	Dictionary Application Program	
12	8/12/2014	NLP (Formal Method)	Syntax Program Part	
13	15/12/2014	NLP (Formal Method)	Semantic Program Part	
14	22/12/2014	Exam	Exam	
15	29/12/2014	Final Course Exam	First Course Practical Exam	
Half-year Break				
16	15/2/2015	Introduction to Adaptive Algorithms	Introduction to Matlab Environment	
17	22/2/2015	Introduction to Artificial Neural Networks (ANN)	Basic and Important Functions in Matlab	
18	1/3/2015	ANN Topology and Structures	Designing and Programming Simple ANN	
19	8/3/2015	ANN Architecture and Activation Functions	Application ANN Program with Activation Function	
20	15/3/2015	Training in ANN with several training rules	ANN with various Training Rules Applications	
21	22/3/2015	Supervised Learning through Perceptron ANN	-----	
22	29/3/2015	Supervised Learning in ANN	Program of Back Propagation	

		through Back propagation NN	NN with Practical Application	
23	5/4/2015	Unsupervised Learning in ANN through Hopfield NN	Program of Hopfield NN with Practical Application	
24	12/4/2015	Unsupervised Learning in ANN through BAM NN	Program of BAM NN with Practical Application	
25	19/4/2015	Self-Organization Learning in ANN through Kohonen NN	Program of Kohonen NN with Practical Application	
26	26/4/2015	Genetic Algorithms Strategy and operators	Designing Simple GA Environment	
27	3/5/2015	Coding and fitness function in Genetic Algorithms	Program of GA with Practical Application	
28	10/5/2015	GA operators and Genetic Programming Principles	Bit transitions and TSP Programs in GA	
29	17/5/2015	Final Course Exam	-----	
30	24/5/2015	Practices	Practices	

Instructor Signature:

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