**بسم الله الرحمن الرحيم**

**University: Diyala University**

**College: College of Engineering**

**Department:Electronic Engineering**

**Stage:Second**

**Lecturer name**

**Qualification: Ph.D.**

**Place of work: Electronic Dept.**

**Republic of Iraq**

**The Ministry Of Higher Education**

**& Scientific Research**



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| Course Instructor |  |
| E-mail | **mohselman@gmail.com** |
| Title | Artificial Intelligent |
| Course Coordinator | **Dr. Mohammed S. Saleh** |
| Course Objective | **To teach 4th class students the concepts of** Artificial Intelligent |
| Course Description | The aim of the AI is to get the introduction to neural networks & fuzzy logic, its development and implementation. It includes; neural versus conventional computing. learning processes. the preceptor. The backpropagation learning algorithm. self-organization feature maps. applications. And introduction to fuzzy theory. fuzzy logic. fuzzy logic in engineering. fuzzy logic is a tool that can be applied to ambiguous, complicated, complex, or nonlinear systems or problems, which cannot easily solved by classical techniques. this course discusses the fundamental of fuzzy set theory and fuzzy logic. in addition, this course also introduces applications of fuzzy logic in several areas such as fuzzy control and fuzzy decision making. |
| Textbook | [1] Jacek M. Zurada, *"****introduction to artificial neural systems****"*[2] T. J. Ross, ***"fuzzy logic with engineering applications"*** |
| Course Assessments | First semester with | Second semester | Final Exam |
| **20 %** | **20 %** | **60 %** |
| General Notes | Type here general notes regarding the course |

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**Course Weekly Outline**

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| --- | --- | --- | --- | --- |
| Week | Date | Topics Covered | Lab. Experiment Assignments | Notes |
| 1 | **1/10/2015** | Introduction of AI |  |  |
| 2 | **8/10/2015** | Introduction of Neural Network |  |  |
| 3 | **15/10/2015** | Types of Neural Network |  |  |
| 4 | **22/10/2015** | Forward network |  |  |
| 5 | **29/10/2015** | Forward network |  |  |
| 6 | **5/11/2015** | Perceptron Nerun |  |  |
| 7 | **12/11/2015** | Perceptron Nerun |  |  |
| 8 | **19/11/2015** | Associative Memory |  |  |
| 9 | **25/11/2015** | Hopfield Neural Network |  |  |
| 10 | **3/12/2015** | Hopfield Neural Network |  |  |
| 11 | **10/12/2015** | BAM Neural Network |  |  |
| 12 | **17/12/2015** | BAM Neural Network |  |  |
| 13 | **24/12/2015** | Hamming Neural Network |  |  |
| 14 | **31/12/2015** | Hamming Neural Network |  |  |
| 15 | **7/1/** | BackPrpagation learning |  |  |
| 16 | 31/1/ | BackPrpagation learning |  |  |
| 17 | **18/2/** | MultiLayer Neural Network |  |  |
| 18 | **25/2/** | MultiLayer Neural Network |  |  |
| 19 | **3/3/** | MultiLayer Neural Network |  |  |
| 20 | **10/3/** | Introduction to Fuzzy Logic System FLS |  |  |
| 21 | **17/3/** | Basic elements for FLS |  |  |
| 22 | **24/3/** | Fuzzy Sets and its relationship |  |  |
| 23 | **31/3/** | Universe of Discourse and fuzzy set |  |  |
| 24 | **7/4/** | Rules for FLS |  |  |
| 25 | **14/4/** | Defuzzyfaction methods |  |  |
| 26 | **21/4/** | Design FLS |  |  |
| 27 | **28/4/** | Design FLS |  |  |
| 28 | **5/5/** | Design FLS |  |  |
| 29 | **12/5/** | FLS applications |  |  |
| 30 | **20/5/** | FLS applications |  |  |
| 31 | **26/5/** | FLS applications |  |  |
| 32 | **3/6/** | MultiLayer Neural Network |  |  |

**INSTRUCTOR Signature: Dean Signature:**