

**Faculty of Computers & Information Technology**

**Expert Systems Development**

**Information :**

**Course Code :** ISY 426

**Level :** Undergraduate

**Course Hours :** 3.00- Hours

**Department :** Department of Information Systems

**Instructor Information :**

Title	Name	Office hours
Associate Professor	Osama Fathy Saleh Hegazy	4
Teaching Assistant	Rahmatallah Hossam Farouk Hassan Mohamed AISofany	2

**Area Of Study :**

This course is a comprehensive treatment of expert systems. It will cover the following topics in Es: Overtime of AI and Es, knowledge engineering, knowledge acquisition techniques. Knowledge representation techniques, teasing techniques, and building experts systems. Also the student will learn how to use expert system shells such as exsys / Clips in building same ES applications.

**Description :**

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**Course outcomes :**

**a.Knowledge and Understanding: :**

1 -	Have some understanding of the basic concepts and techniques of AI and their appropriate use in typical problem solving, planning, expert systems, and other intelligent system applications.
2 -	Have some understanding of the architecture of expert systems shells to a variety of engineering problems.
3 -	Have some understanding of issues in and their appropriate use in typical inferential reasoning, planning, and expert systems applications.
4 -	Have some understanding and description the concepts of knowledge and knowledge management
5 -	Understand the limitations and purposes of expert systems
6 -	Describe the processes by which people think
7 -	Describe the difference and transformation of tacit to explicit knowledge
8 -	Consider process knowledge issues
9 -	Identify and apply expert systems technologies, tools and methodologies

**b.Intellectual Skills: :**

1 -	Appreciate the subtleties related to different approaches to AI
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2 -	Appreciate the subtleties related to different AI techniques
3 -	Decide the suitability of AI techniques for a problem/ domain
4 -	Analyze and design a KBS for a problem
5 -	How to abstract from particular solutions to general ones

**c. Professional and Practical Skills: :**

1 -	Apply and implement simple algorithms for problem solving and knowledge representation techniques in developing simple intelligent systems applications
2 -	Select an appropriate expert system development tool for a given task
3 -	Write programs in PROLOG/Clips/Exsys

**d. General and Transferable Skills: :**

1 -	Deploy communication skills
2 -	Deploy research skills
3 -	Work effectively within a group to analyze, design and implement ES's
4 -	To work to tight deadlines
5 -	Effectively present the final work in a demo
6 -	Justify students design decisions in a written document

**Course Topic And Contents :**

Topic	No. of hours	Lecture	Tutorial / Practical
Expert Systems Overview	4	2	2
Knowledge Acquisition	4	2	2
OAV-SN-Frames	4	2	2
Production Rules	4	2	2
Midterm Exam I	4	2	2
Logic Programming	4	2	2
Predicate Logic	4	2	2
Expert System Design	4	2	2
Inference Network	4	2	2
Midterm Exam II	4	2	2
Inference Network with fuzzy logic	4	2	2
Final Exam	4	2	2

**Teaching And Learning Methodologies :**

Lectures
Practical training
Presentation
Project
Web-Site searches

**Course Assessment :**

Methods of assessment	Relative weight %	Week No	Assess What
Final Exam	40.00	16	
Lab Final Practical Exam	15.00	14	
Lab Mid Term Practical Exam	5.00	7	
Midterm Exam I	15.00	6	
Midterm Exam II	15.00	12	
Research/Presentation	10.00	4	