Faculty of Computers and Information Technology

Expert Systems

Information :

Course Code :	IS426	**Level** :	Undergraduate	**Course Hours :**	3.00- Hours

Department :	Department of Information Systems

Instructor Information :

Title	Name	Office hours
Associate Professor	Khaled Tawfic Hassan Wassif	2
Associate Professor	Khaled Tawfic Hassan Wassif	2
Associate Professor	Khaled Tawfic Hassan Wassif	2
Teaching Assistant	Mariam Ali Ibrahim Elsayed	1
Teaching Assistant	Mariam Ali Ibrahim Elsayed	1
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Area Of Study :

Use and adopt knowledge that enhances skills in fundamental area of expert systems development.
Explain fundamentals of expert systems SDLC.
Implement and evaluate effectively the merits of expert systems development.
Distinguish the operational, strategic and practical issues of expert systems development.
Use effectively communication skills

Description :

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

Course outcomes :

a.Knowledge and Understanding: :

1 -	Discuss different qualitative and quantitative methods for data analysis
2 -	Illustrate different expert systems development designs.
3 -	Integrate expert systems development and implementation

b.Intellectual Skills: :

1 -	Illustrate main ideas, patterns, components, attributes and detect relationships between components of expert systems development with different designs.
2 -	Analyze different IS problems and setting goals and requirements
3 -	Select appropriate methodologies and techniques for expert systems development problem solution and setting out their limitations and errors.
4 -	Design and implement expert systems development programming methods.

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| 5 - | Evaluate and verify different expert systems development solutions using well-defined criteria. |

c.Professional and Practical Skills: :

1 -	Analyze, Design, Implement and test expert systems
2 -	Apply different expert systems development methodologies
3 -	Use the appropriate programming language.

d.General and Transferable Skills: :

| 1 - | Work in a team effectively and efficiently considering time and stress management. |
| 2 - | Apply communication skills in presentations and report writing using various methods and tools |

ABET Course outcomes :

1 -	Use and adopt knowledge that enhances skills in fundamental area of expert systems development
2 -	Demonstrate adequate understanding of the fundamentals of expert systems development life cycle
3 -	Implement and effectively evaluate the merits of expert systems development
4 -	Analyze and compare the different operational, strategic, and practical issues of expert systems development
5 -	Communicate effectively in a variety of professional contexts

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Expert Systems Overview	4	2	2
Expert Systems Overview	4	2	2
Knowledge Acquisition	4	2	2
Knowledge Representation (Script)	4	2	2
Knowledge Representation (OAV-SN-Frames)	4	2	2
Knowledge Representation (Predicate Logic)	4	2	2
Knowledge Representation (production Rules)	4	2	2
Dealing with Uncertainty	4	2	2
Mid Term Exam	2		
Inference Engine	4	2	2
Inference Network	4	2	2
Inference Network	4	2	2
Project presentation	4	2	2
Final Exam	2		

Teaching And Learning Methodologies :

| Interactive Lectures including discussion |
| Practical Lab Sessions |
| Self-Study (Project / Reading Materials / Online Material / Presentations) |

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Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Final Exam	40.00	14	
Midterm Exam (s)	20.00	9	
Others (Participation)	10.00		
Practical Exam	10.00	12	
Quizzes	10.00	5	
Team Work Projects	10.00	10	

Course Notes :

Course Notes are available with all the slides used in lectures in electronic form on Learning Management System (Moodel)

Recommended books :

˝Ivan Bratko, Prolog: programming for artificial intelligent, Addison Wesley, 4th ed. 2011
˝Stuart Russell, Peter Norvig, Artificial Intelligence: A Modern Approach, Prentice Hall, 3ed ed., 2010.

Web Sites :

˝IEEE intelligent systems & their applications
˝IEEE transactions on pattern analysis and machine intelligence
˝Intelligence : new visions of AI in practice international journal of robotics & automation AI magazine
˝Technological Innovations Artificial Intelligence Periodical
˝www.ekb.eg
˝www.ai.com
˝www.robotics.com

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