Faculty of Computers and Information Technology

Virtual Reality

Information :

Course Code :	DM443	**Level** :	Undergraduate	**Course Hours :**	3.00- Hours

Department :	Digital Media Technology

Instructor Information :

Title	Name	Office hours
Lecturer	Heba Hamdy Ali Hussien	3
Lecturer	Heba Hamdy Ali Hussien	3
Teaching Assistant	Mona Mohamed Mohamed Ali Almakhton	
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Area Of Study :

˝Comprehend deeply the fundamental concepts, tools, and techniques used for processing various multimedia information including signal processing, pattern recognition, and speech and processing.
˝Use the technical concepts and practices to design virtual reality system.
˝Deeply understand how to identify different virtual reality applications

Description :

Virtual environment; 3D geometric modeling and transformation; Free form deformation; Particale systems ; Physical simulation ; Human factors ; VR hardware; VR software ; VR applications.

Course outcomes :

a.Knowledge and Understanding: :

1 -	Discuss essential concepts, principles, and theories of current and future development for computing, information, and decision support disciplines
2 -	Explain the important characteristics of different virtual reality techniques
3 -	Select the appropriate techniques of advanced computer graphics and computer vision to design virtual reality applications

b.Intellectual Skills: :

1 -	Analyze problems and asses the relevance and adequacy of information, set goals towards solving them, and formulate the necessary systems requirements
2 -	Analyze and develop innovative, effective and practical designs to solve real-life IT-related problems with identified specifications and constraints
3 -	Select the appropriate design solution and compare among the proposed designs and their expected results

c.Professional and Practical Skills: :

1 -	Apply the principles of effective information management, organization, and presentation to information retrieval of various kinds, including text, images, sound, and video, resolving security issues
2 -	Deploy appropriate tools to design, implement, document and maintain (such as API open source software) to solve practical problems through the acquired comprehensive computing knowledge

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3 -	Identify the different roles of team work members in virtual reality software development

d.General and Transferable Skills: :

1 -	Apply communication skills and techniques in presentations and report writing for range of audiences using various methods and tools
2 -	Work in a team effectively and efficiently considering time and stress management
3 -	Appreciate continuous professional development and lifelong learning.

ABET Course outcomes :

1 -	Demonstrate adequate understanding of the fundamental concepts, tools, and techniques used for processing various multimedia information systems including signal processing, pattern recognition, and speech processing.
2 -	Use the technical concepts and practices to design virtual reality systems.
3 -	Demonstrate adequate understanding how to identify different virtual reality applications.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction	4	2	2
Overview on Forms of Reality and Reality Systems	4	2	2
Immersion Presence and reality trade-offs	4	2	2
Basic Design Guide Lines	4	2	2
Objective and Subjective Reality, Perceptual Models and Processes	4	2	2
Perceptual Modalities, Perception of space and time	4	2	2
Mid-Term Exam	2		
Perceptual Stability, Attention and Action	4	2	2
Perception: Design Guidelines	4	2	2
VR Case Studies of Desktop and Web Applications	4	2	2
VR Case Studies of Desktop and Web Applications	4	2	2
VR Case Studies of Desktop and Web Applications	4	2	2
Discussion of Case Study Projects	4	2	2
Final Exam	2		

Teaching And Learning Methodologies :

Interactive Lectures including Discussions
Practical Lab Sessions
Self-Study (Project / Reading Materials / Online Material / Presentations)
Case Studies

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignments	5.00	4	
Final Exam	40.00	14	

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Midterm Exam (s)	20.00	9	
Others (Participations)	5.00	1	
Quizzes	10.00	5	
Team Work Projects	20.00	12	

Course Notes :
An Electronic form of the Course Notes and all the slides of the Lectures is available on the Students Learning Management System (Moodle)