FUTURE UNIVERSITY IN EGYPT جامعة المستقبل

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
Professor	NEVEEN IBRAHIM MOHAMED GHALI	1
Assistant Lecturer	MAHMOUD MAGDY MOHAMED ABDO	
Teaching Assistant	Hajar Saleh Abdelwahab Mohamad Mohamad	
Teaching Assistant	Reem Khaled Mohamed Elsayed	
Teaching Assistant	Hoda Ahmad Moustafa Abdelrahman Ismail	

Area Of Study :

ÅComprehend deeply the fundamental concepts, tools, and techniques used for processing various multimedia information including signal processing, pattern recognition, and speech and processing.
ÅUse the technical concepts and practices to design virtual reality system.
ÅDeeply 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
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	
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)