UNIVERSITI TEKNOLOGI MARA

CSC793: VIRTUAL ENVIRONMENT

Course Name (English)	VIRTUAL ENVIRONMENT APPROVED
Course Code	CSC793
MQF Credit	3
Course Description	The purpose of this course is to introduce students to the main concepts and practical issues in constructing and understanding Virtual Environments (VE), and how people respond to a VE experience. The focus on the technical side will be more on the multiple senses aspects of VEs. A central theme of the course will also be that the understanding of VEs that can be best understood through the concepts of immersive. By the end of this course students should have an understanding of the core issues in VEs and have constructed a VE product that can be used in most VE applicable area such as education, training, entertainment etc.
Transferable Skills	Problem solving skills developed through tests, assignments and projects.
Teaching Methodologies	Lectures, Discussion
CLO	CLO1 Describe the concepts and the principles of Virtual Environments CLO2 Explain the design approaches in Virtual Environments CLO3 Examine factors of human in Virtual Environments CLO4 Test applications of Virtual Environments
Pre-Requisite Courses	No course recommendations

Topics
1. Introduction 1.1) History and Profession 1.2) Virtual Environment in 21st Century 1.3) Virtual Environments Standards and Terminology
2. System Requirements 2.1) Hardware Requirements 2.2) Software Requirements 2.3) Application Requirements
3. Design Approaches and Implementations Strategies 3.1) Cognitive Aspects of Virtual Environments Design 3.2) Multimodal Interaction Modeling 3.3) Spatial Orientation, Wayfinding, and Representation 3.4) Content Design 3.5) Technology Management and User Acceptance
4. Health And Safety Issues 4.1) Direct Effects on Users 4.2) Signs and Symptoms of Human Syndromes Associated with Synthetic Experiences 4.3) Adapting to Virtual Environments 4.4) Motion Sickness Neurophysiology, Physiological Correlates, and Treatment 4.5) The Social Impact of Virtual Environment
5. Evaluation 5.1) Usability Engineering 5.2) Human Performance Measurement 5.3) Virtual Environment Usage Protocols 5.4) Adaptations and Aftereffects 5.5) Presence and Ergonomics in Virtual Environments

6. Applications of Virtual Environment
6.1) Team Training: An Event-based Approach
6.2) Educational Applications
6.3) Medical Applications
6.4) Information Visualization
6.5) Manufacturing Application
6.6) Entertainment Application
6.7) Future Trends

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	n/a	10%	CLO2
Group Project	n/a	20%	CLO4
Individual Project	n/a	10%	CLO2
Test	n/a	10%	CLO1
Test	n/a	10%	CLO3

Reading List

Recommended Text

- **John Bucher 2018, *Storytelling for Virtual Reality: Methods and Principles for Crafting Immersive Narratives*, 1st Ed., 8, Routledge New York [ISBN: 978-113862965]**
- **Charles Palmer,John Williamson 2018, *Virtual Reality Blueprints*, 1 Ed., 8, Packt Publishing Ltd Birmingham [ISBN: 9781786465030]**
- **Kelly S. Hale,Kay M. Stanney 2017, *Handbook of Virtual Environments*, 2 Ed., CRC Press [ISBN: 9781138074637]**
- **Jaron Lanier 2017, *Dawn of the New Everything: A Journey Through Virtual Reality*, Henry Holt and Company New York, USA [ISBN: 9781627749091]**
- **Alberto Gallace, Charles Spence 2014, *In touch with the future: The sense of touch from cognitive neuroscience to virtual reality*, 1 Ed., 15, Oxford University Press UK [ISBN: 978-019964446]**

Article/Paper List

Recommended Article/Paper Resources

- **Allen Munrro, Robert Breaux, Jim Patrey, and Beth Sheldon 2018, Cognitive Aspects of Virtual Environments Design, *Handbook of Virtual Environments: Design, Implementation, and Applications„* 1, 1217 [ISSN: 978113807]**

Other References

This Course does not have any other resources