UNIVERSITI TEKNOLOGI MARA

CTA513: DIGITAL ANIMATION TECHNOLOGY

Course Name (English)	DIGITAL ANIMATION TECHNOLOGY `APPROVED`
Course Code	CTA513

MQF Credit	3

Course Description	This course introduces students to the concept of 3D computer animation. Through practice and analysis, students will develop an understanding of the essential principles of 3D animation which include perspective, transformations, geometric and Spline-based modeling, lighting, camera work, rendering, basic inverse kinematics and modeling natural phenomena and motion through hands-on experience by utilizing computer tools and application. Concurrently, this course works alongside with the principles of animation.

Transferable Skills	1. Demonstrate ability to identify and articulate self skills, knowledge and understanding confidently and in a variety of contexts. 2. Demonstrate the ability to dream, imagine and visualize.

Teaching Methodologies	Lectures, Blended Learning, Studio

CLO	CLO1 Convey ideas and stories effectively by understanding 3D computer animation functions and environments. CLO2 Develop critical thinking, problem solving and express ideas imaginatively through 3D computer animation CLO3 Alter 3D computer animation work by demonstrate the basic understanding of various tools, techniques and processes.

Pre-Requisite Courses	No course recommendations

Topics
1. Introduction to 3D 1.1) Computer Animation, Environment and Context
2. Types of modeling 2.1) Modifiers and the modifier stack
3. Modeling/deformation animation techniques 3.1) Lathing, displacement, lofting, Booleans
4. Modeling 4.1) Lofts, Compound Objects, and Patch modeling
5. Low-polygon modeling 5.1) Edit Poly and Edit Mesh
6. Symmetry Modifier tools and techniques 6.1) Modifier tools
7. Textures and texture mapping 7.1) Bump Map, Specular Map, Diffuse Map, Pelt Mapping
8. Introduction to Animation 8.1) Keyframes, curve editor, constraints
9. Basic deformation and hierarchical animation 9.1) Rigging & skinning
10. Lights, Lighting Effects, Cameras and Render Effects. 10.1) Lights, Lighting Effects, Cameras and Render Effects.

11. Environments, environment mapping, fogs and atmospheres 11.1) Environments and Visual Effects
12. Rendering 12.1) Mental Ray rendering
13. Final presentation 13.1) Presentation on Final Project
14. Revision & Consultation 14.1) Troubleshooting

Assessment Breakdown	%
Continuous Assessment	80.00%
Final Assessment	20.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Assignment 1 - 3D Modelling	25%	CLO1 , CLO2
	Assignment	Assignment 2 - Texturing and Mapping	55%	CLO1 , CLO2

Reading List	Recommended Text	• **Kerlow, Isaac 2009,** *The Art of 3D Computer Animation and Effects*, **Fourth Ed., Wiley USA**
	Reference Book Resources	• **Gardner, Garth 2003,** *Gardner's Guide to Colleges for Multimedia and Animation*, **Fourth Ed., Garth Gardner Company USA** • **O'Rourke, Michael 2003,** *Principles of Three-Dimensional Computer Animation*, **Third Ed., W. W. Norton & Company New York** • **Withrow, Steven 2009,** *Secrets of Digital Animation*, **Rotovision SA Switzerland** • **Wyatt, Andy 2010,** *The Complete Digital Animation Course: Principles, Practices and Techniques: A Practical Guide for Aspiring Animators*, **Barron's Educational Series USA**
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	