UNIVERSITI TEKNOLOGI MARA

GDT311: 3D ANIMATION

Course Name (English)	3D ANIMATION APPROVED
Course Code	GDT311
MQF Credit	4
Course Description	In this subject, students will be introduce to the production process of developing 3D animation, based on the Principles of Animation and various video editing techniques. Students will participate through essential stages in producing 3D animation such as modeling, texturing, lighting, camera, animation and rendering that are integrated with pre-production, production and post-production process. In the end, students are required to use their creativity to create 3D animated models, complete with special characteristics within a 3D environment.
Transferable Skills	Computer skills,Animation skills, Presentation Skills, Audio video editing skills.
Teaching Methodologies	Lectures, Blended Learning, Lab Work, Tutorial, Presentation, Directed Self-learning , Computer Aided Learning
CLO	CLO1 Apply the techniques, terminologies and production of 3D animation. CLO2 Propose the technical skills and aesthetically values in 3D animation project. CLO3 Initiate creative animated movie project with integrating 3D animation and multimedia elements.
Pre-Requisite Courses	No course recommendations

Topics
1. (A). Introduction to the syllabus (B). Introduction to 3D program 1.1) Briefing: Explain the course requirements and learning activities. 1.2) Definition: (What is 3D?;What is Animation?; How to create 3D?;
2. (A) Introduction to Principles of Animation (B) Introduction to User 2.1) Working with files 2.2) Understanding 3D dimensions (XYZ) ; 2.3) Lab Practice: Arranging 3D geometrical objects in viewport using X, Y, Z axis.
3. (A) Pre-Production (B) Introduction to 3D Animation: 3.1) (A)Pre-Production 3.2) Treatment/script 3.3) Storyboard 3.4) Sketch 3.5) (B) 3D Animation 3.6) Modeling 3.7) Working with Objects and Modifiers 3.8) Primitive 3.9) Selection and Properties 3.10) Layers or Groups 3.11) Clones, Mirrors and Arrays 3.12) Transformers
4. (A) Production (B) Introduction to 3D Animation: 4.1) (A)Production 4.2) Designing graphic 4.3) 3D modeling and animation 4.4) (B) Introduction to 3D Animation 4.5) Modeling 4.6) Spline and Shape Modeling 4.7) Poly Modeling 4.8) Patch Modeling 4.9) Mesh Modeling

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4.10) Nurbs 4.11) Compound Objects
5. (A) 3D Material and mapping (B) Production [continue from week 4] 5.1) (A)3D Material Mapping 5.2) Standard materials 5.3) Compound Materials 5.4) Raytrace Materials 5.5) Animated Materials 5.6) Map Modifiers 5.7) (B) Production (continue from week 4) 5.8) Designing graphic 5.9) - 3D modeling and animation
6. (A) Basic cinematic and film terminologies (B) Production (continue) 6.1) (A) Basic cinematic and film terminologies 6.2) Introduction to 3D Animation: Lights&Camera 6.3) Creating and Positioning 6.4) (B) Production (continue) 6.5) Designing graphic 6.6) 3D modeling and animation
7. (A) 3D Animation (B) Production [continue from week 6] 7.1) (A) 3D Animation 7.2) Time and keys 7.3) Animated objects 7.4) Wiringparameters/helpers 7.5) Animation modifiers 7.6) Track view 7.7) Constraints 7.8) Animation Controllers 7.9) (B) Production (continue) 7.10) Designing graphic 7.11) 3D modeling and animation
8. (A) Introduction to 3D Animation: Rendering and Effects 8.1) Post Production 8.2) Offline editing
9. (A) Basic Video Recording and Editing (B) Post Production 9.1) Post Production 9.2) Offline editing
10. (A) 3D Animation: Basic (part 1) 10.1) Post Production (Modifier (Loft) 10.2) Offline editing
11. (A) Basic Video Composting (B) Post Production 11.1) Post Production (Composting) 11.2) Offline editing
12. (A) Integrating project with final video and audio 12.1) Post Production (final project) 12.2) Offline editing (Final Project)
13. (A) Integrating project with final video and audio 13.1) Post Production (final project) 13.2) Offline editing (Final Project)
14. (A)Practical Exam & Submission of report (To be informed) 14.1) Final AssesmentPresentation

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Assessment Breakdown	%
Continuous Assessment	100.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	Student is required to Research on 3D animation and example of animation industry Student need to produce ideation, sketch storyboard. The progress of the project will be review and discuss in weekly basis up till final date of submission.	30%	CLO1
Assignment	Student is required to develop idea and Modelling on 3D Software. During the production of the modelling and texturing , it is compulsory for student to consult and get advice from lecturer in every stages of the production. The progress of the project will be review and discuss in weekly basis up till final date of submission.	30%	CLO2
Assignment	Student is required to produce 3D Animation video based on ideation and story boarding During the production of the 3D Animation, it is compulsory for student to report, consult and get advice from lecturer in every stages of the pre production, production and post production. The progress of the project will be review and discuss in weekly basis up till final date of submission.	40%	CLO3

Reading List

Recommended Text

- **Barret Fox 2003, *3D Animation From Concepts To Completion:Cg Cinematic,*, 2003 Ed., McGraw-Hill Publishing USA**
- **Kerlow 2003, *The art of 3D computer animation and effects*, Wiley Publishing USA**
- **Bonney, Anzovin 2005, *Inside 3ds Max 7*, New Riders Publishing USA**
- **Lyver, swainson 1999, *Basic Video Production*, Focal Press Publishing USA**
- **Christiansen 2008, *Adobe After Effects CS4 Visual Effects and Compositing Studio Techniques*, Adobe Press**

Article/Paper List

Reference Article/Paper Resources

- **Han Yutong,Feng Wenlong,Feng Yinshuang 2018, Research on model optimization based on 3DS max modeling, *Research on model optimization based on 3DS max modeling* https://ieeexplore.ieee.org/document/8394362**

Other References

- **Website Autodesk 2017, *3D Animation Technique*, Autodesk, © Copyright 2020 Autodesk Inc. All rights reserved https://area.autodesk.com/tutorials/series/3ds-max-animation-techniques-series/**

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