Course: **3D Animation using Autodesk Maya 2023**

Contact Hours: **36**

Pre-requisite: **Computer Literacy, Adobe Photoshop, Adobe After Effects**

Abstract

This courseware is designed for computer literate users who require basic training in 3D software. It incorporates the features, commands and techniques for modeling, texturing, rigging and animation on a 3D platform. Exercises throughout the courseware explore the necessary toolset to create a fully animated product, moving from pre-production, to creation in a 3D software, to a completed video file. All exercises are provided in a digital format.

Target Audience

- Engineers
- Students
- Artists
- Filmmakers
- Animators

Learning Outcomes

On completion of this course, learners will be able to:

1. Formulate proper Pre-production materials
2. Understand and apply the 12 Principles of Animation
3. Navigate through the User Interface
4. Create basic Polygon Objects
5. Model utilizing Reference Images
6. Texture Objects and Modify Materials
7. Create Simple and Complex rigs
8. Create and Modify Cameras
9. Animate Objects, Rigs and Cameras
10. Differentiate and Control Lighting
11. Render and Composite Final Images

Course Content

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1. Formulate proper Pre-production Materials

- Formulating a script
- Creating a storyboard
- Designing a Character Sheet and Concept Art
- Compiling References

2. Understand and Apply the 12 Principles of Animation

- Reviewing the 12 Principles of Animation
- Observing usage of each principle
- Formulating instances for use of each principle
- Discussing the value of each principle

3. Navigate through the User Interface

- Understanding the Menu set
- Creating a Project folder
- Setting Preferences
- Saving and Opening scene files
- Storage and Folder set up
- Traverse through 3D space

4. Creating Basic Polygon Objects

- Differentiating basic polygon primitives
- Using the manipulation tools
- Understanding the channel box
- Manipulating components

5. Model Utilizing Reference Images

- Setting up image planes
- Using symmetry modeling
- Manipulating orthographic cameras
- Utilizing the polygon modeling toolset

6. Texture Objects and Modify Materials

- Understanding material type
- Viewing the Hypershade
- Using the UV editor
- Importing and creating textures
- Modifying the Attribute editor

7. Create Simple and Complex Rigs

- Finalizing and optimizing polygon objects
- Using the Parent Child method
- Creating proper hierarchies
- Creating Joints
- Binding a mesh
- Utilizing skin weights

8. Create and Modify Cameras

- Creating a camera
- Exploring camera types
- Editing Camera attributes
- Utilizing view guides and resolution

9. Animate Objects, Rigs and Cameras

- Exploring the timeline
- Setting and editing keyframes
- Utilizing the Graph Editor
- Creating a playblast

10. Differentiate and Control Lighting

- Exploring different light types
- Adjusting light specific attributes
- Manipulating light objects in 3D space
- Light Linking
- Editing shadows

11. Render and Composite Final images

- Exploring different render types
- Configuring render settings
- Saving and exporting rendered images
- Compositing final images
- Colour correction and final video render

Assessment Criteria

In order to achieve Learning Outcome…	The Learner must…
1. Formulate proper pre-production materials	Create a valid script, storyboard and design sheet.
2. Understand and apply the 12 Principles of Animation	Review and describe the 12 principles and their uses in dynamic animation.
3. Navigate through the User Interface	Identify interface elements, explain and demonstrate how to set a project, open and save scene files.
4. Create Polygon Objects	Use the polygon toolset to create basic, identifiable 3D objects
5. Model using Reference Images	Create a final 3D model using image plane references and the modeling toolset
6. Texture Objects and Modifying Materials	Change the default material of a 3D object and incorporate a UV mapped texture
7. Create Simple and Complex Rigs	Create a simple model bound to a properly named and placed skeleton. Use the Parent Child method to create a quadruped rig.
8. Create and Modify Cameras	Create and manipulate a suitable camera to match a final scene set up.
9. Animate Objects, Rigs and Cameras	Animate all items in a created environment to create interactive character and prop action.
10. Differentiate and Control Lighting	Create and manipulate lights to achieve a given mood and visual.
11. Render and Composite Final Images	Utilize the proper render type to set up, and create, final images from a scene. Composite all images together into a final video file.

Note all required course material will be provided on the SBCS E-Learning platform.