PRECISION EXAMS

3D Animation

EXAM INFORMATION

Exam Number
819
Items
33
Points
35
Prerequisites
Digital Graphic Arts I
Digital Media I
Digital Media II
3D Graphics
or Teacher Approval
Recommended Course Length
One Semester

National Career Cluster
Arts, A/V Technology, & Communications
Information Technology
Science, Technology, Engineering, & Mathematics

Performance Standards
Included (Optional)

Certificate Available
Yes

DESCRIPTION

3D Animation is a one-semester course using 3D graphics software to produce 3D models and animations. This course will introduce students to 2D and 3D, animation planning, storyboard development, and the animation process.

EXAM BLUEPRINT

STANDARD	PERCENTAGE OF EXAM
1- Career Opportunities	26%
2- 3D Software Tools and Interface	3%
3- 12 Principles of Animation	37%
4- Animating 3D Models	11%
5- Animating Rigged 3D Characters	6%
6- Animating Cameras	11%
7- Batch Render Animated Scenes	6%

STANDARD 1

STUDENTS WILL IDENTIFY CAREER OPPORTUNITIES AVAILABLE WITHIN 3D GRAPHICS AND ANIMATION

Objective 1 Identify career opportunities in the following areas:

1. Identify uses of 3D in Entertainment.
2. Identify uses of 3D in Health Sciences.
3. Identify uses of 3D in Architecture and Engineering.
4. Identify uses of 3D in Aerospace.
5. Identify uses of 3D in Advertising.
6. Identify uses of 3D in Motion Graphics
7. Identify uses of 3D graphics in 3D Printing.

Objective 2 Develop career awareness in the 3D Graphics and Animation industry.

1. Identify the following job titles and responsibilities: Character Modeler, Texture Artist, Renderer, Technical Director/Artist, Environmental Artist, Character Animator, Lighting Technician.
2. Identify Post-Secondary Education programs and degrees related to the field.
3. Develop the following professional behaviors including: punctuality, responsibility, teamwork, ethics.

Objective 3 Understand the 3D Animation Pipeline such as:

1. Pre-Production
    1. Story
    2. Character design/Concept art
    3. Storyboard
    4. Dialogue
    5. Animatic
2. Production
    1. Modeling
    2. Rigging
    3. Mapping and textures
    4. Animating objects
    5. Lighting
3. Post-Production
    1. Rendering
    2. Visual effects/compositing
    3. Editing
    4. Color Correction

Standard 1 Performance Evaluation included below (Optional)

STANDARD 2

STUDENTS WILL UNDERSTAND AND UTILIZE 3D SOFTWARE TOOLS AND INTERFACE

Objective 1 Introduce basic 3D terminology and 3D user interface.

1. Timeline
2. Playback controls
3. Graph/animation editor

Standard 2 Performance Evaluation included below (Optional)

STANDARD 3

STUDENTS WILL BE ABLE TO UTILIZE THE 12 PRINCIPLES OF ANIMATION

Objective 1 Understand and apply the Principles of Animation:

1. Squash and Stretch
2. Anticipation
3. Staging
4. Straight Ahead and Pose to Pose
5. Follow Through and Overlapping Action
6. Slow In and Slow Out
7. Arcs
8. Secondary Action
9. Timing
10. Exaggeration
11. Appeal
12. Solid Drawing

Standard 3 Performance Evaluation included below (Optional)

STANDARD 4

STUDENTS WILL BE ABLE TO ANIMATE A 3D MODEL

Objective 1 Identify the following 3D animation terminology:

1. Keyframe
2. Timeline
3. Scrub
4. In-Betweens
5. Playhead
6. Framerate
7. Forward Kinematics and Inverse Kinematics (FK/IK)

Objective 2 Demonstrate the following animation skills:

1. Set and edit keyframes
2. Translate, rotate over time
3. Animate a cycle
4. Edit pivot points

Objective 3 Identify various animation effects including:

1. Particle effects
2. Cloth dynamics
3. Elementals (water, fire, wind)

Standard 4 Performance Evaluation included below (Optional)

STANDARD 5

STUDENTS WILL BE ABLE TO ANIMATE A RIGGED 3D CHARACTER

Objective 1 Pose a rigged character.

1. Manipulate a rigged character
2. Create strong poses for blocking/keyframing
3. Keyframe initial pose for animation

Objective 2 Animate a rigged character.

1. Use pose to pose animation
2. Adjust in-betweening
3. Edit slow in and slow out
4. Refine animation

Standard 5 Performance Evaluation included below (Optional)

STANDARD 6

STUDENTS WILL BE ABLE TO ANIMATE A CAMERA

Objective 1 Understand and use image composition and camera movement.

1. Close Up, Medium, Wide
2. Pan, Tilt, Zoom, Dolly

Objective 2 Keyframe a camera to animate it.

Standard 6 Performance Evaluation included below (Optional)

STANDARD 7

STUDENTS WILL BE ABLE TO BATCH RENDER AN ANIMATED SCENE

Objective 1 Understand advanced rendering techniques.

1. Motion Blur
2. Image Sequence
3. Batch Render
4. Aspect Ratio

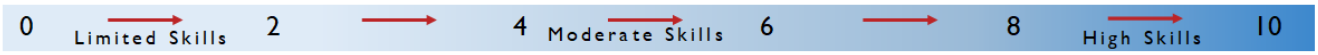
Objective 2 Render an animation image sequence.

3D Animation Performance Standards (Optional)

Performance assessments may be completed and evaluated at any time during the course. The following performance skills are to be used in connection with the associated standards and exam. To pass the performance standard the student must attain a performance standard average of **8 or higher** on the rating scale. Students may be encouraged to repeat the objectives until they average **8 or higher**.

Students Name_____

PERFORMANCE RATING SCALE



Class_____

STANDARD 1 Career Opportunities — Score:

- ☐ Identify various applications of 3D graphics
- ☐ Identify career opportunities in the 3D graphics and animation industry
- ☐ Develop a realistic Student Plan for College and Career Readiness to guide further educational/occupational pursuits
- ☐ Discuss relevant history of 3D modeling and animation

STANDARD 2 3D Software Tools and Interface — Score:

- ☐ Identify different software within 3D animation

STANDARD 3 12 Principles of Animation — Score:

- ☐ Develop animation that uses principles of animation

STANDARD 4 Animating 3D Models — Score:

- ☐ Animate a 3D model

STANDARD 5 Animating Rigged 3D Characters — Score:

- ☐ Pose a rigged character
- ☐ Animate a rigged character

STANDARD 6 Animating Cameras — Score:

- ☐ Use image composition and camera movement when creating a 3D animation
- ☐ Use the principles of animation

PERFORMANCE STANDARD AVERAGE SCORE:

Evaluator Name _____

Evaluator Title _____

Evaluator Signature _____

Date ____