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.

<table>
<thead>
<tr>
<th>Intended Grade Level</th>
<th>9-12</th>
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<tbody>
<tr>
<td>Units of Credit</td>
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<td>Core Code</td>
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<td>Prerequisite</td>
<td>Intro to Graphic Communication, Digital Graphics Art Intro, Digital Media 1, Digital Media 2, 3D Graphics, or Teacher Approval</td>
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<td>Skill Certification Test Number</td>
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<td>License Type</td>
<td>CTE and/or Secondary Education 6-12</td>
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<td>Required Endorsement(s)</td>
<td>Multimedia</td>
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STRAND 1

Students will identify the career opportunities available within 3D Graphics and Animation.

Standard 1
Identify career opportunities in the following areas:
- Identify uses of 3D in Entertainment
- Identify uses of 3D in Health Sciences
- Identify uses of 3D in Architecture and Engineering
- Identify uses of 3D in Aerospace
- Identify uses of 3D in Advertising
- Identify uses of 3D in Motion Graphics
- Identify uses of 3D Graphics in 3D Printing

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

Standard 3
Understand the 3D Animation Pipeline such as:
- Pre-Production
  - Story
  - Character design/Concept art
  - Storyboard
  - Dialogue
  - Animatic
- Production
  - Modeling
  - Rigging
  - Mapping and textures
  - Animating objects
  - Lighting
- Post-Production
  - Rendering
  - Visual effects/compositing
  - Editing
  - Color correction
Performance Skills
- Identified various applications of 3D graphics.
- Identified career opportunities in the 3D graphics and animation industry.
- Developed a realistic Student Plan for College and Career Readiness to guide further educational/occupational pursuits.
- Discussed relevant history of 3D modeling and animation.

STRAND 2
Students will understand and utilize 3D software tools and interface.

Standard 1
Introduce basic 3D terminology and 3D user interface.
- Timeline
- Playback controls
- Graph/animation editor

Performance Skills
- Identified different software within 3D animation.

STRAND 3
Students will be able to utilize the 12 principles of animation.

Standard 1
Understand and apply the Principles of Animation:
- Squash and Stretch
- Anticipation
- Staging
- Straight Ahead and Pose to Pose
- Follow Through and Overlapping Action
- Slow In and Slow Out
- Arrows
- Secondary Action
- Timing
- Exaggeration
- Appeal
- Solid Drawing

Performance Skills
- Developed animation that uses principles of animation.
STRAND 4
Students will be able to animate a 3D model.

Standard 1
Identify 3D the following animation terminology:
  • Keyframe
  • Timeline
  • Scrub
  • In-Betweens
  • Playhead
  • Framerate
  • Forward Kinematics and Inverse Kinematics (FK/IK)

Standard 2
Demonstrate the following animation skills:
  • Set and edit keyframes
  • Translate, rotate over time
  • Animate a cycle
  • Edit pivot points

Standard 3
Identify various animation effects, including:
  • Particle effects
  • Cloth dynamics
  • Elementals (water, fire, wind)

Performance Skills
  • Animated a 3D model.

STRAND 5
Students will be able to animate a rigged 3D character.

Standard 1
Pose a rigged character.
  • Manipulate rigged character
  • Create strong poses for blocking/keyframing
  • Keyframe initial pose for animation

Standard 2
Animate a rigged character.
  • Use pose to pose animation
  • Adjust in-betweening
  • Edit slow in and slow out
  • Refine animation
Performance Skills

- Pose a rigged character.
- Animate a rigged character.

STRAND 6

Students will be able to animate a camera.

Standard 1
Understand and use image composition and camera movement.
- Close Up, Medium, Wide
- Pan, Tilt, Zoom, Dolly

Standard 2
Keyframe a camera to animate it.

Performance Skills

- Used image composition and camera movement when creating a 3D animation.
- Used the principles of animation.

STRAND 7

Students will be able to batch render an animated scene.

Standard 1
Understand advanced rendering techniques.
- Motion Blur
- Image Sequence
- Batch Render
- Aspect Ratio

Standard 2
Render an animation image sequence.

Workplace Skills

Communication, Problem Solving, Teamwork, Critical Thinking, Dependability, Accountability

Skill Certificate Test Points by Strand

<table>
<thead>
<tr>
<th>Test Name</th>
<th>Test #</th>
<th>Number of Test Points by Strand</th>
<th>Total Points</th>
<th>Total Questions</th>
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<td>3D Animation</td>
<td>819</td>
<td>9 1 13 4 2 4 2</td>
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January 2018