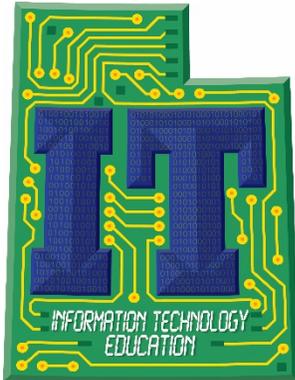# STRANDS AND STANDARDS
3D ANIMATION

Course 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.

Intended Grade Level	9-12
Units of Credit	0.5
Core Code	35.02.00.00.075
Concurrent Enrollment Core Code	32.02.00.13.075
Prerequisite	Intro to Graphic Communication, Digital Graphics Art Intro, Digital Media 1, Digital Media 2, 3D Graphics, or Teacher Approval
Skill Certification Test Number	819
Test Weight	0.5
License Type	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Multimedia

CTE® Learning that works for Utah

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
- Arcs
- 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

Test Name	Test #	1	2	3	4	5	6	7	8	9	10	Total Points	Total Questions
3D Animation	819	9	1	13	4	2	4	2				35	33