STRANDS AND STANDARDS

3D ANIMATION 2

Learning that works for Utah CTE®

Course Description

3D Animation 2 is a course that builds on the skills and knowledge acquired in 3D Animation 1, using advanced 3D graphic software tools to create complex models and animations. Students will learn the entire animation workflow from planning, storyboarding, development, testing, and delivery of client project-based work. They will also explore how to research and solve real world animation problems, refine their artistic and technical abilities in 2D and 3D animation, and develop work that can be used in a professional portfolio. This course is mainly project-based and requires creativity, collaboration, and communication skills.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	35-02-00-00-076
Concurrent Enrollment Core Code	35-02-00-13-076
Prerequisite	3D Animation 1
Skill Certification Test Number	8192
Skill Certification Cut Score	**71%**
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Multimedia

Updated: JUNE 2025

STRAND 1

Students will show greater understanding of the 12 Principles of Animation.

Standard 1

Analyze and implement the 12 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

Students will demonstrate the princes of animation throughout their projects

STRAND 2

Students will understand and demonstrate pre-production practices.

Standard 1

Students will understand the uses of storyboarding

- Story development
- Identify storyboard layering (foreground, background, midground, overlay)
- Identify staging (i.e. close up, wide, medium, etc.)
- Identify movements (i.e. dolly/zoom, pan, tilt, truck, roll, pedestal, etc.)

Standard 2

Students will understand the uses of animatics (animated storyboards)

- Identify timing/duration
- Identify temporary audio elements (scratch audio, sound effects, music)
- Identify transitions

Standard 3

Identify uses of concept art in the animation pipeline

- Character art
- Environmental
- Props

Performance Skills

Understand and implement pre-production practices in student projects.

STRAND 3

Students will understand and demonstrate production practices.

Standard 1

Students will understand asset management

- Import or create models
- Import or create textures
- Import or create materials
- Import or create lights
- Import or create animation
- Import or create cameras

Standard 2

Students will understand character animation

- Rigging
  - IK (Inverse Kinematics)
  - FK (Forward Kinematics)
- Straight ahead animation
- Pose to pose animation
  - Blocking
  - In-betweens

Standard 3

Students will understand visual effects

- Simulation
  - Rigidbodies
  - Fluid dynamics
  - Cloth
  - Particles (i.e. smoke, fire, water)
  - Hair
- Procedural materials

Performance Skills

Understand and implement production practices in student projects

STRAND 4

Students will understand post-production as it relates to the animation pipeline.

Standard 1

Students will understand render outputs

- Rendering – Rendering is to create an image or sequence of images by calculating all scene information
  - File formats (.jpg, .png, .exr, .mp4)
- Compositing
- Color Correction

Standard 2

Students will understand video editing

- Compiling rendered scenes into sequence
- Add final sound effects
- Add final voice tracks
- Add final music

Performance Skills

Understand and implement post-production practices in student projects

STRAND 5

Students will implement rigging techniques.

Standard 1

Students will create a simple rigged object or character.

- IK (Inverse Kinematics)
- FK (Forward Kinematics)
- Joints / Controls
- Parent / Child relationships (Hierarchy) Sub
- Vertex animation (Blend shapes / morph targets)

Standard 2

Students will identify expression driven controls

- Drivers / Set Driven Keys
- Custom scripts

Performance Skills

Understand and implement rigging techniques in student projects

STRAND 6

Students will implement advanced animation techniques.

Standard 1

Students will demonstrate advanced uses of the principles of animation

- Body Mechanics
- Acting Choices
  - Character personality
  - Emotion
  - Subtext
- Timing and Spacing

Standard 2

Students will continue to strengthen their skills in cycle animations.

Standard 3

Students will Implement the use of particles and simulations.

Standard 4

Students will implement the use of path animation.

Standard 5

Students will explore advanced rendering techniques:

- CPU Rendering – using the computer's central processing unit to generate images and animations from 3D
- models
- GPU Rendering – leverages a graphic processing unit to generate images & animations from 3D models
- Render Engines – dedicated software used for creating computer generated imagery
- Real-time Rendering – displaying calculated computer-generated imagery instantaneously
- Render Farms – a network of computers designed to render computer generate imagery quickly

Performance Skills

Demonstrate advanced animation techniques in student projects.

STRAND 7

Students will participate in a work-based learning experience and/or student competition.

Standard 1

Participate in a work-based learning experience. (Optional)

- Take a field trip to an animation business
- Do a job shadow for someone in the animation career
- Listen to an industry or post-secondary guest speaker
- Work for an animation company

Standard 2

Participate in a digital media student competition. (Optional)

- Enter a school or school digital media contest
- Prepare and submit an entry for the Digital Media Arts Festival
- Enter and compete in a CTSO (Career & Technical Student Organization) competition in an animation area

Standard 3

Students will understand the advantages of self-promotion in the animation field

- Showcasing your best work:
  - Demo Reels
  - Digital Portfolios
  - Digital Citizenship

Performance Skills

Students will use the Strands & Standards in this course to create an advanced animation project.

Workplace Skills

Workplace Skills taught:

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

Skill Certification Test Points & Questions by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	**2**	**3**	**4**	**5**	**6**	**7**					
3D Animation 2	8192	7	8	6	4	4	5	1					
		Number of Questions by Strand											
		1	**2**	**3**	**4**	**5**	**6**	**7**					
		7	6	5	3	4	3	1				35	29