

# 3D Art II – Animation

## Course Overview and Syllabus

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**Course Number:** EL5718

**Grade level:** 6-10

**Prerequisite Courses:** 3D Art I – Modeling

**Credits:** 0.5

### Course Description

The 3D Art II Animation design course focuses on building animation skills including realistic movement and lighting. Students learn the Blender® software workspace and tools; location and rotation properties; scripts; IP curves; vector handles; rendering and baking animations and simulations; and particle systems and emitters. Activities and projects promote key 3D animation concepts including frames and key frames, squash and stretch, action strips, walk cycles and poses, and trajectories. Students develop the skills needed to design and create animations with an understanding of the skills needed to succeed as professional animators. (Prerequisite: 3D Art I: Modeling).

### Course Objectives

Throughout the course, you will meet the following goals:

- Define sphere, UVSphere, segments, and rings
- Use the Transform Properties panel to set an object's location and rotation properties
- Use a lattice to deform a 3D object
- Define animation, frame, and keyframe
- Define script, trajectory, IPO curve, curve point, curve handle, and vector handle
- Select and change IPO curves
- Use spot lamps, fill lights, backlights, overhead lights, ambient lights, spotlights, and negative light
- Stretch and squash an object
- Create lighting animations
- Add texture to a lamp
- Define and move pivot points
- Use parent-child relationships to link objects
- Define data and data blocks
- Identify and create the main poses in a walk cycle, including the contact pose, passing pose, high-point pose, and recoil pose
- Convert an animation to an action strip, and use the action strip to increase the animation

length and to change its speed

- Turn a UVSphere into a particle emitter system with a fiery explosion effect
- Add a fluid simulation inside a shape
- Add an emitter particle system with rocket-like particles
- Make a half-sphere particle emitter that sprays particles
- Create a random vertex group and turn it into a particle emitter system
- Add an object with a force field
- Render an animation
- Bake and render a simulation

## Student Expectations

This course requires the same level of commitment from you as a traditional classroom course would. Throughout the course, you are expected to spend approximately 5–7 hours per week online on the following activities:

- Interactive lessons that include a mixture of instructional segments and tasks
- Assignments in which you apply and extend learning in each lesson
- Assessments including quizzes, tests, and cumulative exams

## Communication

Your teacher will communicate with you regularly through discussions, email, chat, and system announcements. You will also communicate with classmates, either via online tools or face to face, as you collaborate on projects, ask and answer questions in your peer group, and develop your speaking and listening skills.

## Grading Policy

You will be graded on the work you do online and the work you submit electronically to your teacher. The weighting for each category of graded activity is listed below.

Grading Category	Weight
Assignments	0%
Essays	0%
Labs	0%
Lesson Quizzes	20%
Unit Tests	10%
Cumulative Exams	0%
Projects	70%

## Scope and Sequence

When you log into Edgenuity, you can view the entire course map—an interactive scope and sequence of all topics you will study. The units of study are summarized below:

**Project 1:** Bounce a Ball: Create a ball from a UVSphere and use a lattice to squash and stretch the ball. Change IPO curves to control the bounce.

**Project 2:** Light a Stage: Add lighting to a scene and create a lighting animation that changes color and brightness.

**Project 3:** Grab a Ball: Link pieces of a robot arm together, and raise and lower the arm. Lift and drop a ball from the arm.

**Project 4:** Make a Walk Cycle: Use a 3D character model to create a walking animation. Convert the animation to an animation strip to change the speed and make it repeat.

**Project 5:** Make an Explosion: Make a UVSphere into a particle emitter system that creates a fiery explosion.

**Project 6:** Pour Liquid: Create a fluid simulation that looks like water.

**Project 7:** Make Fireworks: Make an emitter particle system with rocket-like particles, and then make a reactor particle system that explodes the particles.

**Project 8:** Fill a Fountain: Spray watery particles from a fountain.

**Project 9:** Start a Fire: Turn a random vertex group into a particle emitter system. Create a force field with texture and turbulence.