3D Art II: Animation

Course Overview and Syllabus

Course Number: ART210
Grade level: 9–12

Prerequisite Courses: 3D Art I – Modeling
Credits: 0.5

Course Description

In this advanced course, build on the skills developed in 3D Art I to learn 3D animation techniques. Using Blender®, the world’s most powerful open-source modeling tool, master the basics of animation-trajectory, lighting, bones, and movement-while learning how to apply traditional animation techniques to your 3D models.

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, e-mail, chat, and system announcements. Through this communication with your teacher, you will monitor your progress through the course and improve your learning by reviewing material that was challenging for you.

You will also communicate with classmates, either via online tools or face-to-face, as you do the following:

• Ask and answer questions in your peer group
• Develop 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.

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<tr>
<th>Grading Category</th>
<th>Weight</th>
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Page 2 | © Edgenuity Inc.
Scope and Sequence

When you log into the Virtual Classroom, you can view the entire course map, which provides a scope and sequence of all topics you will study. Clicking a lesson’s link in the course map leads to a page listing instructional activities, assignments, and learning objectives specific to that lesson. 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.