Class Title: Animation

Teacher Name: Mr. Joey

Class Day: Monday
This is a year-long class

Class Max: 18

Class Cost: $285 per semester

Ages or color group served: Orange (middle and high school)

What level is this class: Level 3

Prerequisites: must own and bring a laptop to class. It must be a laptop.

Graduation Requirements: Final Project Showcase

Homework Requirements: There will be consistent weekly homework

Semester 1: Introduction to 3D Animation with Blender

Semester Overview:

This semester will focus on introducing students to the fundamentals of 3D animation using Blender. Students will learn the basics of Blender's interface, modeling, texturing, and animation tools.

This will be an online class that takes place in an in person, group setting, with Teacher Kelly Close as the in person teacher aide.

Semester Duration: 12 weeks
Week 1-2: Introduction to Blender Basics

- Introduction to Blender Interface
- Navigation and Viewport Controls

- Basic Object Manipulation (Translate, Rotate, Scale)
- Assignments: Create simple geometric shapes, practice navigation and manipulation.

Week 3-4: Modeling and Texturing

- Introduction to 3D Modeling
- Creating Meshes: Vertices, Edges, and Faces
- Introduction to Materials and Textures
- UV Unwrapping Basics
- Assignments: Model and texture simple objects (e.g., cup, chair).

Week 5-6: Introduction to Animation

- Introduction to Keyframe Animation
- Animation Timeline and Dope Sheet
- Basic Transformations and Keyframing
- Introduction to Rigging and Armatures
- Assignments: Create simple animations (e.g., bouncing ball, rotating cube).

Week 7-8: Intermediate Modeling and Texturing

- Advanced Modeling Techniques (Subdivision, Sculpting)
- Advanced Texturing and Material Nodes
- Procedural Texturing
- Assignments: Model and texture more complex objects (e.g., character, environment).

Week 9-10: Character Animation

- Character Rigging and Weight Painting
- Pose Library and Character Animation Basics
- Assignments: Create character animations (e.g., waving hello, jump animation).

Week 11-12: Project Development

- Project Planning and Storyboarding
- Refining Animation Techniques
- Rendering and Output
- Presentation and Feedback

Semester 2: Advanced 3D Animation with Blender

Semester Overview:

This semester will focus on building upon the skills learned in Semester 1 and exploring advanced animation techniques and principles. Learners will deepen their understanding of animation principles and apply them to more complex projects.

Semester Duration:

12 weeks

Week 1-2: Advanced Animation Techniques

- Introduction to Graph Editor and Animation Curves
- Animation Principles Review
- Advanced Keyframing Techniques
- Assignments: Create animations focusing on specific principles.

Week 3-4: Physics Simulation and Dynamics

- Introduction to Physics Simulation in Blender (Particle Systems, Cloth Simulation)
- Introduction to Fluid Simulation
- Integrating Simulations into Animations
- Assignments: Create animations using physics simulations.

Week 5-6: Lighting and Rendering

- Introduction to Lighting Techniques
- Using HDRIs for Realistic Lighting
- Introduction to Cycles Renderer
- Render Optimization Tips
- Assignments: Render scenes with different lighting setups.

Week 7-8: Advanced Rigging and Character Animation

- Advanced Rigging Techniques (IK, Constraints)
- Facial Rigging and Expressions
- Advanced Character Animation Exercises
- Assignments: Create advanced character animations (e.g., fight scene, emotional acting).

Week 9-10: Special Effects and Compositing

- Introduction to Blender's Compositing Nodes
- Adding Visual Effects (Smoke, Fire, Explosions)
- Green Screen Keying and Integration
- Assignments: Create scenes with special effects and compositing.

Week 11-12: Project Development and Finalization

- Project Planning and Storyboarding
- Refining Animation Techniques
- Rendering and Output
- Presentation and Feedback
- Final Project Showcase