

USD 233 – OLATHE DISTRICT SCHOOLS

Course Title: Animation 1

Credit: ½

Grade Level: 10, 11

Course Length: 1 Semester

Course Description:

This introductory course will provide students with the processes and techniques of traditional and computer graphics animation. While studying the elements and principles of animation, students will learn the art of storytelling through the processes of storyboarding, narrative writing, and expository writing. Using a variety of tools, including the computer, beginning animators will produce flipbooks, stop-motion, and simple computer animations to learn how to bring objects and characters to life with personalities of their own to be used in film, television, web, and computer gaming.

Prerequisites: Digital Works.

Required Textbooks: Cartoon Animation, Visual Storytelling: The Art and Technique (Text books subject to change).

Instructional Strategies: Direct instruction, demonstration, graphic organizers, application exercises, projects, cooperative groups, case studies, guest speakers, DVD(s), videos, internet.

Assessments: Daily work performance, teacher observation, rubric, checklist, classroom discussion, projects, research relevant to topic, application performance, exams, conferencing, portfolio, written response, sketchbook, journaling, self evaluation.

Course Objectives:

- Communicate ideas and stories with a variety of basic animations processes, techniques, and media.
- Apply visual communications knowledge and skills to express ideas imaginatively.
- Use critical thinking, and problem solving to communicate ideas visually
- Select appropriate animation media, techniques, and processes for specific purposes
- Produce flipbooks, stop-motion and computer animations that demonstrate basic control of a variety of media, techniques, and processes in traditional and emerging technology.
- Produce storyboards and animations that demonstrate basic knowledge of expository and narrative communication processes and animation theory.

Course Content:

I. Introduction to Animation: Traditional Animation/3D Animation.

- History/Time Line
- Animation Terminology
- Animation Technology/Development
- Visual Milestones
- 2D/3D Animation

II. Digital Production Process

- Production strategies
- Digital Computer Animation Studio
- Creative and Production Teams
- Computer Animation Process
- 2D/3D Animation

III. Key Principles of Animation

- Straight-Ahead Action vs. Pose-to Pose Action
- Slow-In and Slow-Out
- Squash and Stretch
- Arcs
- Anticipation
- Staging
- Secondary Actions
- Timing
- Follow-Through and Overlapping Action

IV. Basic Animation/Head

- Circular Form
- Rounded Form
- Exposure Sheet
- Line of Action
- Line of Action in Animation
- Rhythm and Design
- Movement of Body Masses

V. Skeletal/Ball and Socket Animation

- Skeletal Form

- Exposure Sheet
- Line of Action
- Line of Action in Animation
- Rhythm and Design
- Movement of Body Masses
- Principles of Animation

VI. Cartoon Animation

- Cartoon Form
- Exposure Sheet
- Line of Action
- Line of Action in Animation
- Rhythm and Design
- Movement of Body Masses
- Principles of Animation
- Movements of the Two-Legged Figure
- Movements of the Four Legged Figure

VII. Stop - Motion Animation/Figure & Clay

- Figure Articulation
- Armature Construction
- Still Frame Animation
- Action Poses
- Background Plates
- Foreground Plates
- Compositing
- Color Correction

VIII. Introduction to MAYA Unlimited

- Shelves
- Main Window
- Marking Menus
- Display > UI Elements
- Quick layout buttons
- Status line
- Command line
- Attribute editor
- Channel box

IX. Creating, Manipulating, and Viewing Objects

- Creating A New Scene
- Primitive Objects
- The Toolbox-Layout Shortcuts
- The Toolbox- Transformation Tools
- The Channel Box
- Duplicating Objects
- Creating a Project

X. Viewing The MAYA 3D Scene

- Camera Tools
- Workflow Overview
- Viewing Objects In Shaded Mode
- Grouping Objects
- The Hypergraph
- Selection Modes and Masks
- Pivot Points

XI. Components and Attributes

- Template Display
- Components
- The Attribute Editor
- Surface Materials

XII. Polygonal Modeling

- Creating a Foundation Shape From a Primitive
- Splitting Polygons
- Using the Poly Extrude Manipulator
- Subdividing Polygon Faces
- Smoothing Edges

XIII. NURBS Modeling

Revolving a Curve to Create a Surface

- Creating a Profile Curve
- Creating a Revolve Surface
- Editing a Revolve Surface

Sculpting a Surface

- Preparing a surface for sculpting
- Basic Sculpting Techniques
- Additional Sculpting Techniques
- Sculpting a Nose
- Sculpting Eye Sockets
- Sculpting Eyebrows
- Sculpting a Mouth

XIV. Lofting Curves to Create a Surface

- Creating Profile Curves For A Surface
- Duplicating Curves
- Lofting a Surface
- Modifying a Primitive Object
- Using the Outliner to Parent Objects

XV. Shading Surfaces

- Assign a Shading Material
- Modifying Surface Specularity
- Material Types
- Assigning Textures
- Using The Hypershade Editor
- Creating a Texture Within The Hypershade Editor
- Modifying a Bump Texture

XVI. Lights, Shadows, Cameras

- Directional Lights
- Spotlights
- Editing Light Attributes
- Shadows
- Creating Additional Cameras in a Scene
- Animating Camera Moves

XVII. Animation

- Setting The Playback Range
- Setting Keyframes
- Using the Graph Editor
- Changing The Timing of an Attribute
- Fine Tuning an Animation
- Deleting Extra Keyframes and Static Channels

- Using Playblast To Playback an animation

XVIII. Rendering

- Creating Shading Materials For Objects
- Rendering a Single Frame Using IPR
- Rendering Using The Maya Software Renderer
- Batch Rendering a Sequence of Animation Frames
- Viewing A Sequence of Rendered Frames

XIX. Basic Character Construction/Texturing

- Polygonal Extrude methodology
- Split Polygon Tool
- Append
- Vertices
- Faces
- Edges
- Smoothing
- Normals
- Materials
- UV Mapping
- UV Editor
- Hypershade

XX. Basic Character Rigging

- Rigid Bind Skin
- Joints
- IK systems
- Deformers
- Set Membership Tool
- Paint Set Membership Tool

XXI. Lip Sync/Expressions Fundamentals

- Dialogue Expressions
- Dialogue Character Acting
- The Vowels
- The Consonants
- Lip Sync

METHODS OF EVALUATION OF COMPETENCIES:

Evaluation of student mastery of course competencies will be accomplished using the following grading scale.

Grading:

A = 90 -100%

B = 80 - 89%

C = 70 - 79%

D = 60 - 69%

F = 0 - 59%

Extra Credit: The instructor must approve project.

0-5 points is given for extra credit per approved project. Project must be finished and handed in on specified date at the beginning of class. Only four approved projects per semester allowed.