



MERT 50
PRINCIPLES OF ANIMATION
COURSE SYLLABUS ● FALL 2008
SECTION NO. 21248 ● 3 UNITS

**MEDIA ARTS DEPARTMENT
VICTOR VALLEY COLLEGE**

- CLASS HOURS** ● MONDAY & WEDNESDAY 1:00 – 3:25 PM
- LOCATION** ● DIGITAL ANIMATION LAB BUILDING 21A-1 LOWER CAMPUS
- INSTRUCTOR** ● STEVE NELLE (760) 245-4271 EXT 2653 EMAIL: nelles@vvc.edu
- PREREQUISITE** ● **NONE**
- TEXTBOOK** ● SOFTIMAGE | XSI: THE OFFICIAL GUIDE ISBN # 1592005810
- CALENDAR**
- | | |
|--------------------------|----------------|
| ● INSTRUCTION BEGINS | AUGUST 25 |
| LABOR DAY HOLIDAY | SEPTEMBER 1 |
| VETERAN'S DAY HOLIDAY | NOVEMBER 10 |
| THANKGIVING DAY HOLIDAYS | NOVEMBER 27–28 |
| SEMESTER ENDS | DECEMBER 13 |
- WITHDRAWAL POLICY** ● LAST DAY TO WITHDRAW FROM A SEMESTER LENGTH CLASS AND RECEIVE A 'W' GRADE IS SEPTEMBER 17, 2008.
- NOTE** ● PLEASE REMEMBER THAT IT IS THE STUDENT'S RESPONSIBILITY TO DROP A CLASS. THE WITHDRAWAL PROCESS IS NOT AUTOMATIC AND COULD RESULT IN THE STUDENT RECEIVING A COURSE GRADE OF **F** SHOULD THE PROCESS NOT BE COMPLETED CORRECTLY. IF YOU HAVE ANY QUESTIONS OR CONCERN, PLEASE TALK TO YOUR INSTRUCTOR.
- ATTENDANCE** ● REGULAR ATTENDANCE IS EXPECTED AND CONSIDERED PART OF SUCCESSFULLY COMPLETING THE CLASS. EACH STUDENT IS REQUIRED TO SIGN IN ON A DESIGNATED ATTENDANCE SHEET IN ORDER TO BE COUNTED AS PRESENT FOR THAT DAY. EXCESSIVE ABSENCES FROM CLASS WILL BE CONSIDERED GROUNDS FOR THE STUDENT BEING DROPPED.
- GRADING POLICY** ● YOUR FINAL GRADE WILL BE BASED ON THE ACCUMULATED POINTS

YOU EARN ON EIGHT (8) CLASSROOM TESTS AND/OR PROJECTS AND ONE (1) FINAL PROJECT. EACH ASSIGNMENT WILL BE WORTH ONE HUNDRED (100) POINTS. THE FINAL PROJECT WILL BE WORTH TWO HUNDRED (200) POINTS.

ALL ASSIGNMENTS WILL BE DUE ON THE DATE SCHEDULED. LATE PROJECTS WILL BE ACCEPTED UP TO TWO (2) WEEKS AFTER THEIR DUE DATE. THERE WILL BE AN AUTOMATIC TWENTY-FIVE (25) POINT DEDUCTION PENALTY FOR ANY PROJECT THAT IS TURNED IN LATE. PROJECTS WILL **NOT** BE ACCEPTED AFTER THE TWO WEEK TIME FRAME UNLESS PRIOR ARRANGEMENTS HAVE BEEN MADE WITH YOUR INSTRUCTOR. CLASSROOM TESTS WILL BE REQUIRED TO BE COMPLETED ON THE DAY THEY ARE ASSIGNED. COMPLETION OF EACH SOFTWARE-RELATED PROJECT WILL REQUIRE THE STUDENT TO PROPERLY TRANSFER THEIR COMPLETED WORK TO THE DIGITAL ANIMATION LAB'S NETWORK SERVER FOR EVALUATION. STUDENTS WILL BE INSTRUCTED AS TO THE SPECIFIC SERVER LOCATION (DIRECTORY) FOR THEIR COMPLETED WORK. SAVING TO THE PROPER LOCATION WILL BE CONSIDERED PART OF SUCCESSFULLY COMPLETING THE ASSIGNMENT.

EXTRA CREDIT ASSIGNMENTS MAY BE MADE AVAILABLE FOR STUDENTS INTERESTED IN IMPROVING THEIR OVERALL FINAL GRADE. ARRANGEMENTS MUST BE MADE PRIOR TO BEGINNING WORK ON SUCH PROJECTS. INSTRUCTOR APPROVAL AND ADEQUATE TIME FOR ASSIGNMENT COMPLETION ARE REQUIRED. IF INTERESTED, PLEASE DISCUSS THE POSSIBILITY OF COMPLETING AN EXTRA CREDIT ASSIGNMENT WITH YOUR INSTRUCTOR.

FINAL GRADES WILL BE COMPUTED USING THE FOLLOWING POINT SYSTEM

<u>Grade</u>	<u>Total Points</u>	<u>% of Total Points</u>
A	900 – 1000	100 – 90
B	800 – 899	89 – 80
C	650 – 799	79 – 65
D	600 – 649	64 – 60
F	599 or less	59 % or less

Course Description

Using one of the industry's premiere 3D software applications, this course is designed to teach students the fundamental concepts and procedures required for creating quality three-dimensional animations. Students are introduced to a wide range of topics including basic and advanced modeling techniques, the use of object-based operators, creating realistic materials, using lights and cameras, essential special effects including particle systems and space warps, rendering procedures and keyframe animation and editing. Students will also have the opportunity to explore relevant issues dealing with the pre-production process, traditional animation principles and industry trends and analysis.

Course Objectives

Upon completion of this course the student will:

1. Examine and categorize the significant events in the development of the animation industry, both traditional and computer-generated.
2. Visualize and implement an animation storyboard that visually depicts the plot and determines the art style of the project.
3. Possess an understanding of the fundamental elements of creating, manipulating and reviewing a complete three-dimensional model rendering.
4. Understand the procedures and techniques necessary for creating realistic scene elements including life-like surface textures, mood lighting and effective camera angles.
5. Understand the process of creating and editing keyframed animation for the purpose of producing a wide range of motion styles while implementing traditional animation principles.

Required Materials

Other than course books, there are no required materials. It is recommended that students purchase blank CDs for backing up your work. Victor Valley College assumes no responsibility for lost or corrupted student work.

Supplemental Materials

Students will be provided handouts throughout the course. The handouts are designed to bolster the student's understanding of course concepts and principles, in addition to adding important information relevant to the subjects covered.

Lab Time

The Digital Animation Lab will be open for students needing additional time to complete their assignments and/or wishing to further their knowledge and experience level. A schedule providing details as to when the Lab will be open for student use will be handed out during the first week of instruction.

Lab Visitors

The use of Digital Animation Lab work stations is limited to students currently enrolled in one or more Digital Animation classes. We unfortunately must ask that visits from family and friends be restricted to individuals officially enrolled at Victor Valley College because of insurance and/or liability concerns. If you have any questions or special circumstances, please talk with your instructor.

Food and Drink

The Digital Animation Lab instructors ask that NO food be brought into the classroom. Drinks are permitted but must be kept away from the work stations due to concerns pertaining to spillage and damage to the equipment. A table has been set up on the parking lot side of the classroom for any drinks that may be brought into the Lab.

Cell Phones

If you happen to carry a cell phone, we ask that you turn down the volume of the ringing device as consideration to others. Phones should preferably be turned to vibrate mode if possible. If your phone does ring, we ask that you take your call outside to avoid disrupting class.

Plagiarism

Cheating is a serious offense, and will be dealt with accordingly. Any student caught

plagiarizing either a written exam or hands on project, risks being dropped from class and receiving an F for a final grade.

Importance of Traditional Art Training

In as much as one doesn't have to be an artist to be a successful computer animator, having a foundation built on traditional art concepts and principles is definitely of value.

If you are serious about the field of Animation, we would strongly recommend that you consider taking a few Art courses while at VVC. Classes in drawing and composition, life drawing, color and design, and sculpture would all be outstanding choices to improve your sense of design and proportion. The Digital Animation staff of instructors would be happy to answer any questions you might have as to what specific Art courses would be most appropriate to your goals and interests.

Suggestions Additional Readings

XSI Specific

SoftImage | XSI 5 for a Future Animation Studio Boss
The Official Guide to Career Skills with XSI
George Avgerakis
ISBN: 1592008461

Experience XSI 4: The Official SoftImage Guide to Character Animation
Michael Isner
ISBN: 1592002102

XSI Illuminated: Character
Anthony Rossano
ISBN: 0970753047

General Animation

Animation: From Script to Screen
Shamus Culhane
ISBN: 0312050526

The Illusion of Life
Frank Thomas & Ollie Johnston
ISBN: 0786860707

Suggestions Additional Readings (cont.)

The Animator's Survival Kit
Richard Williams
ISBN: 0571202284

Animation from Pencil to Pixels
Tony White
ISBN: 0240806700

Timing for Animation
Harold Whitaker & John Halas
ISBN: 0240517148

Storytelling Through Animation
Mike Wellins
ISBN: 1584503947

Cartoon Animation
Preston Blair
ISBN: 1560100842

Film Directing: Shot by Shot
Steven Katz
ISBN: 0914188108

Digital Cinematography
Ben de Leeuw
ISBN: 0122088751

Digital Character Animation 3
George Maestri
ISBN: 0321376005

Digital Texturing and Painting
Owen Demars
ISBN: 0735709181

Your Career in Animation: How to Survive and Thrive
David Levy
ISBN: 1581154453

Producing Animation
Catherine Winder & Zahra Dowlotabadi
0-2408-0412-0

Course Outline

Note: Course work and subject material may be presented in a different order than listed.

I. Traditional Animation Principles and Practices

- A. The Production Process -- From Script to Screen
 - 1. Developing a Concept
 - 2. Telling a Good Story
 - 3. The Elements of Color, Design and Composition
 - 4. Workflow
 - 5. Output Issues

- B. Principles of Animation
 - 1. Anticipation
 - 2. Squash and Stretch
 - 3. Overlapping Action
 - 4. Follow-Through
 - 5. Staging
 - 6. Exaggeration
 - 7. Secondary Motion
 - 8. Weight & Timing
 - 9. Ease In / Ease Out
 - 10. Arcing Motion
 - 11. Symmetry

- C. Storyboards
 - 1. The Use of Storyboards
 - 2. The Importance of Storyboards
 - 3. Creating Storyboards

Test: The Principles of Animation

II. Industry Trends and Analysis

- A. Introduction to Computer Generated Imagery
- B. Applications and Uses
- C. Where the Jobs Are
- D. What Employers Look For
- E. Demo Reel Suggestions

III. Getting Started

- A. Introduction to SoftImage XSI

- B. Understanding 3D Space
- C. Interface Overview

IV. Basic Terminology and Modeling

- A. Creating Basic Geometry
- B. Defining XSI Geometry – Surface vs. Polygon Mesh Objects
- C. Issues of Complexity

V. Selecting Objects

- A. Object and Component Mode
- B. Object and Component Selection
- C. Manipulating Component Selections
- D. Selection Filters

VI. Transformations: Move, Rotate, Scale

- A. The Transformation Manipulator
- B. Understanding Axis Restriction
- B. Reference Coordinate Systems Local vs. Global vs. View
- C. Copies and Instances
- D. Supra vs. Sticky Mode

Test: xsi Interface

VII. Organization, Hierarchy and Groups

- A. Hierarchies
 1. Introduction to Creating a Hierarchy
 2. Linking and Forward Kinematics
 3. Creating Links
 4. Pivot Points
 5. Parent-Child Inheritance
- B. Grouping Objects

VIII. Polygon Modeling

- A. Polygon Modeling Tools

- B. Transforming Edges, Points and Polygons
- C. Basic Modeling Techniques
 - 1. Extrusion Along Axis
 - 2. Extrusion Along Curve
 - 3. Revolution Along Axis
 - 4. Loft
 - 5. Boolean
- D. Proportional Modeling
- E. Clusters
- F. Modeling with Deformers
- G. Subdivision Surfaces
- H. Surface Normals
- I. Conversion Techniques
 - 1. Curves to Mesh
 - 2. NURBS to Mesh
 - 3. Merge
- J. The Operator Stack
 - 1. The IMMEDIATE Button
 - 2. Freezing the Operator Stack
 - 3. Construction History

PROJECT: Basic Modeling

IX. Materials and Texture Projections

- A. Materials
 - 1. What is a Material/Shader?
 - 2. Introduction to the Materials Property Page
 - 3. Material and Shading Types
 - 4. Material Color
 - 5. Specular Decay
 - 6. Transparency
 - 7. Refraction
 - 8. Reflection
 - 9. Bump and Displacement
 - 10. Incandescence
 - 11. Texture Projections

PROJECT: BUILDING MATERIALS USING
INTERNET RESOURCES

PROJECT: Creating & Applying Materials

X. Lighting and Rendering

A. Lights

1. Lighting Theory - Mood and Influence
2. CG Lights vs. Real World Lights
3. Light Types
4. Lighting Setup and Placement
5. Cone Angle, Spread Angle and Light Shape
6. Intensity
7. Attenuation and Decay
8. Shadows
9. Volume Light
10. Ambient Light
11. Global Illumination

B. Rendering

1. What is Rendering?
2. Introduction to the Render Manager
3. Previewing an Animation
4. Rendering and Saving a Still Image
5. Rendering and Saving an Animation
6. Viewing a Saved Render
7. Environments and Backgrounds

PROJECT: Scene Lighting

XI. Working With Layers

- A. Using Layers
- B. Adding, Deleting and Moving Objects on Layers
- C. Organizing a Character

PROJECT: organizing layers

XII. Basic Animation and Keyframing

- A. Introduction to Animation
 - 1. Creating Keyframes - Auto vs. Set Key
 - 2. Timeline Overview
 - 3. Time Configuration
 - 4. fps Considerations
 - 5. Animation Transformations
 - 6. Animating Operators
 - 7. Animating Divots
 - 8. Animating Materials
 - 9. Animating Lights
 - 10. Animating Cameras
 - 11. Path Animation
 - 12. Editing Keyframes on the Timeline

XIII. The Animation Editor

- A. Introduction to the Animation Editor
- B. Editing Keyframes in the Animation Editor
- C. Animation Curves Basics
- D. Animation Curve Editing Techniques

Test: animation critique

Project: Final