COURSE OUTLINE

# Art 234
# Advanced 3-D Character Set-Up

## Catalog Statement

ART 234 provides students with advanced training in character set-up techniques. Skills covered include binding of the character using joints and influence objects, installation and modification of the Full-Body Inverse Kinematic (FBIK) skeleton, the creation of blendshape targets, and the facial animation control system. The student will be encouraged to design a character set-up and test it for use in an animated scene.

Total Lecture Units: 2.5
Total Laboratory Units: .5
**Total Course Units: 3.0**

Total Lecture Hours: 40.0
Total Laboratory Hours: 24.0
Total Laboratory Hours To Be Arranged: 0.0
**Total Faculty Contact Hours: 64.0**

Prerequisite: ART 233 or equivalent.

Note: Current industry standard digital animation software will be used.

## Course Entry Expectations

Prior to enrolling in the course, the student should be able to:

- install, label, orient, and use joints inside a character skin;
- bind the skin of a character to the joint hierarchy and edit skin weighting;
- install, label, and use IK handles and pole vector constraints;
- set up the reverse foot control system;
- establish set driven key relationships.

## Course Exit Standards

Upon successful completion of the required coursework, the student will be able to:

- bind the skin of a character using both joints and influence objects;
- create error-free skin weighting;
- create complex IK systems;
- create blendshape targets and set up a facial animation control system;
- use mel scripting to set up custom character control windows;
- set up biped or quadruped characters;
- test a character system thoroughly to determine if it is ready for use by an animator.

**Course Content** **Total Faculty Contact Hours = 64.0**

Advanced Binding of Skin Lecture **(10 hours)**
- Small weights
- The component editor
- Impact of influence objects on mesh
- Weight mapping problems
- Set-driven-key

The FBIK System Lecture **(10 hours)**
- FBIK control system and keyframe animation
- FBIK joints
- Installation of FBIK handles
- Poses and animation clips
- The relationship between FBIK and motion capture data

Mel Scripting Lecture **(10 hours)**
- Custom user interface windows
- Attribute sets for interface windows
- Character sets
- Commands and workflow

Creating the Facial Animation System Lecture **(10 hours)**
- The blendshape node
- The head within the deformation hierarchy
- Blendshape targets
- Strategies for blendshape node interaction
- The facial animation system

Projects Emphasizing Technical and Aesthetic Development **(24 laboratory hours)**

## Methods of Instruction

The following methods of instruction may be used in this course:
- lectures and demonstrations;
- instructor critique of student work;
- peer critique of student work;
- individual instruction of students in a computer lab.

## Out of Class Assignments

The following out of class assignments may be used in this course:
- drawing a skeleton inside a three dimensional digital character mesh;
- weighting the skin of a character mesh with respect to the skeleton;
- creating animation control systems;
- performing animation tests.

## Methods of Evaluation

The following methods of evaluation may be used in this course:
- evaluation of projects and assignments;

- midterm and final examinations;
- evaluation of final project.

## Textbooks

"Autodesk Maya." *Autodesk Knowledge Network*. Autodesk Inc., n.d. Web. 8 May 2014.
9th Grade Reading Level.

"Maya Learning Channel." *YouTube*. YouTube, n.d. Web. 8 May 2014.
9th Grade Reading Level.

## Student Learning Outcomes

Upon successful completion of the required coursework, the student will be able to:

- set up a complex character.