

COURSE OUTLINE

Art 234 Advanced 3-D Character Set-Up

I. 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: 2.0

Total Studio Units: 1.0

Total Course Units: 3.0

Total Lecture Hours: 32.0

Total Studio Hours: 32.0

Total Faculty Contact Hours: 64.0

Prerequisite: ART 233 or equivalent.

*Note: Current industry standard digital animation software (Maya) will be used.

II. Course Entry Expectations

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

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

III. Course Exit Standards

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

1. bind the skin of a character using both joints and influence objects;
2. create error-free skin weighting;
3. create complex IK systems;
4. create blendshape targets and set up a facial animation control system;

5. use mel scripting to set up custom character control windows;
6. set up biped or quadruped characters;
7. test a character system thoroughly to determine if it is ready for use by an animator.

IV. Course Content

Total Faculty Contact Hours = 64

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| A. Advanced Binding of Skin | Lecture 8 hours |
| 1. Small weights | |
| 2. The component editor | |
| 3. Impact of influence objects on mesh | |
| 4. Weight mapping problems | |
| 5. Set-driven-key | |
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| B. The FBlK System | Lecture 8 hours |
| 1. FBlK control system and keyframe animation | |
| 2. FBlK joints | |
| 3. Installation of FBlK handles | |
| 4. Poses and animation clips | |
| 5. The relationship between FBlK and motion capture data | |
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| C. Mel Scripting | Lecture 8 hours |
| 1. Custom user interface windows | |
| 2. Attribute sets for interface windows | |
| 3. Character sets | |
| 4. Commands and workflow | |
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| D. Creating the Facial Animation System | Lecture 8 hours |
| 1. The blendshape node | |
| 2. The head within the deformation hierarchy | |
| 3. Blendshape targets | |
| 4. Strategies for blendshape node interaction | |
| 5. The facial animation system | |
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| E. Projects Emphasizing Technical and Aesthetic Development | Studio 32 hours |

V. Methods of Instruction

The following methods of instruction may be used in this course:

1. lectures and demonstrations;
2. instructor critique of student work;
3. peer critique of student work;
4. individual instruction of students in a computer lab.

VI. Out of Class Assignments

The following out of class assignments may be used in this course:

1. drawing a skeleton inside a three dimensional digital character mesh;
2. weighting the skin of a character mesh with respect to the skeleton;
3. creating animation control systems;
4. performing animation tests.

VII. Methods of Evaluation

The following methods of evaluation may be used in this course:

1. evaluation of projects and assignments;
2. midterm and final examinations;
3. evaluation of final project.

VIII. Textbook

"Autodesk Maya." *Autodesk Knowledge Network*. Autodesk Inc., n.d. Web. 08 May 2014.

9th Grade Reading Level.

"Maya Learning Channel." *YouTube*. YouTube, n.d. Web. 08 May 2014.

9th Grade Reading Level.

IX. Student Learning Outcome

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

1. set up a complex character.