

## ART234 : Advanced 3-D Digital Character Set-Up

### General Information

Author:	<ul style="list-style-type: none"><li>Roger Dickes</li></ul>
Course Code (CB01) :	ART234
Course Title (CB02) :	Advanced 3-D Digital Character Set-Up
Department:	ART
Proposal Start:	Spring 2025
TOP Code (CB03) :	(0614.40) Animation
CIP Code:	(10.0304) Animation, Interactive Technology, Video Graphics, and Special Effects.
SAM Code (CB09) :	Clearly Occupational
Distance Education Approved:	No
Will this course be taught asynchronously?:	No
Course Control Number (CB00) :	CCC000590048
Curriculum Committee Approval Date:	02/28/2024
Board of Trustees Approval Date:	04/16/2024
Last Cyclical Review Date:	02/28/2024
Course Description and Course Note:	ART 234 provides students with advanced training in 3-D character set-up techniques. Students learn how to bind a character to a complex skeleton, edit the relationship between the skeleton and character skin, and create a facial animation control system. Students are encouraged to design a character set-up on their own and test it for use in an animated scene using current industry standard digital animation software (Autodesk Maya).
Justification:	Mandatory Revision
Academic Career:	<ul style="list-style-type: none"><li>Credit</li></ul>
Author:	<ul style="list-style-type: none"><li>Roger Dickes</li></ul>

### Academic Senate Discipline

Primary Discipline:	<ul style="list-style-type: none"><li>Art</li></ul>
Alternate Discipline:	No value
Alternate Discipline:	No value

### Course Development

<b>Basic Skill Status (CB08)</b> Course is not a basic skills course. <input type="checkbox"/> Allow Students to Gain Credit by Exam/Challenge	<b>Course Special Class Status (CB13)</b> Course is not a special class. <b>Pre-Collegiate Level (CB21)</b> Not applicable.	<b>Grading Basis</b> <ul style="list-style-type: none"><li>Grade with Pass / No-Pass Option</li></ul> <b>Course Support Course Status (CB26)</b> Course is not a support course
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## Transferability & Gen. Ed. Options

### General Education Status (CB25)

Not Applicable

### Transferability

Transferable to CSU only

### Transferability Status

Approved

## Units and Hours

### Summary

<b>Minimum Credit Units (CB07)</b>	3
<b>Maximum Credit Units (CB06)</b>	3
<b>Total Course In-Class (Contact) Hours</b>	72
<b>Total Course Out-of-Class Hours</b>	90
<b>Total Student Learning Hours</b>	162

### Credit / Non-Credit Options

#### Course Type (CB04)

Credit - Degree Applicable

#### Noncredit Course Category (CB22)

Credit Course.

#### Noncredit Special Characteristics

No Value

#### Course Classification Code (CB11)

Credit Course.

Variable Credit Course

#### Funding Agency Category (CB23)

Not Applicable.

Cooperative Work Experience

Education Status (CB10)

### Weekly Student Hours

	In Class	Out of Class
Lecture Hours	2	4
Laboratory Hours	0	0
Studio Hours	2	1

### Course Student Hours

<b>Course Duration (Weeks)</b>	18
<b>Hours per unit divisor</b>	0
<b>Course In-Class (Contact) Hours</b>	
Lecture	36
Laboratory	0
Studio	36
<b>Total</b>	72
<b>Course Out-of-Class Hours</b>	
Lecture	72
Laboratory	0
Studio	18
<b>Total</b>	90

## Time Commitment Notes for Students

No value

## Units and Hours - Weekly Specialty Hours

Activity Name	Type	In Class	Out of Class
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No Value	No Value	No Value	No Value
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## Pre-requisites, Co-requisites, Anti-requisites and Advisories

### Prerequisite

ART233 - 3-D Digital Character Set-Up/Kinematics (in-development)

#### Objectives

- 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.

## Entry Standards

Entry Standards

## Course Limitations

Cross Listed or Equivalent Course

## Specifications

Methods of Instruction

Methods of Instruction	Lecture
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Methods of Instruction	Laboratory
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**Methods of Instruction****Demonstrations****Out of Class Assignments**

- Drawing of a skeleton inside a three dimensional digital character mesh
- Weighting of the skin of a character mesh with respect to the skeleton
- Creating animation control systems
- Performing animation tests

**Methods of Evaluation****Rationale**

Project/Portfolio

Projects and assignments

Exam/Quiz/Test

Midterm Exam

Project/Portfolio

Final Project

Exam/Quiz/Test

Final Exam

**Textbook Rationale**

No Value

**Textbooks****Author****Title****Publisher****Date****ISBN**

No Value

No Value

No Value

No Value

No Value

**Other Instructional Materials (i.e. OER, handouts)****Description**

Maya Learning Channel

**Author**

No value

**Citation**

No value

**Online Resource(s)**

No value

**Materials Fee**

No value

**Learning Outcomes and Objectives****Course Objectives**

Bind the skin of a character using both joints and influence objects.

Create error-free skin weighting.

Create complex IK systems.

Assemble blendshape targets and set up a facial animation control system.

Set up custom character control windows using mel scripting.

Set up biped or quadruped characters.

Test a character system thoroughly to determine if it is ready for use by an animator.

## SLOs

**Set up an advanced 3-D character for animation.**

Expected Outcome Performance: 70.0

*ILOs* Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions;  
*Core* cultivate creativity that leads to innovative ideas.  
*ILOs*

Demonstrate depth of knowledge in a course, discipline, or vocation by applying practical knowledge, skills, abilities, theories, or methodologies to solve unique problems.

**Use advanced 3-D character set-up software tools.**

Expected Outcome Performance: 70.0

*ILOs* Demonstrate depth of knowledge in a course, discipline, or vocation by applying practical knowledge, skills, abilities, theories, or  
*Core* methodologies to solve unique problems.  
*ILOs*

## Additional SLO Information

**Does this proposal include revisions that might improve student attainment of course learning outcomes?**

No

**Is this proposal submitted in response to learning outcomes assessment data?**

No

**If yes was selected in either of the above questions for learning outcomes, explain and attach evidence of discussions about learning outcomes.**

No Value

**SLO Evidence**

No Value

## Course Content

### Lecture Content

#### Advanced Binding of Skin (9 hours)

- Small weights
- The component editor
- Impact of influence objects on mesh

- Weight mapping problems
- Set-driven-key

**Advanced Skeletal Setup (9 hours)**

- Analysis of kinetic hierarchy
- Placement and orientation of joints
- Installation of IK controls and reverse foot
- Poses and animation clips

**Mel Scripting (9 hours)**

- Custom user interface windows
- Attribute sets for interface windows
- Character sets
- Commands and workflow

**Creating the Facial Animation System (9 hours)**

- The blendshape node
- The head within the deformation hierarchy
- Blendshape targets
- Strategies for blendshape node interaction
- The facial animation system

**Total hours: 36**

**Laboratory/Studio Content**

**Advanced Binding of Skin (9 hours)**

- Small weights
- The component editor
- Impact of influence objects on mesh
- Weight mapping problems
- Set-driven-key

**Advanced Skeletal Setup (9 hours)**

- Analysis of kinetic hierarchy
- Placement and orientation of joints
- Installation of IK controls and reverse foot
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**Mel Scripting (9 hours)**

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**Creating the Facial Animation System (9 hours)**

- The blendshape node
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- The facial animation system

**Total hours: 36**

**Additional Information**

Is this course proposed for GCC Major or General Education Graduation requirement? If yes, indicate which requirement in the two areas provided below.

No

**GCC Major Requirements**

No Value

**GCC General Education Graduation Requirements**

No Value

**Repeatability**

Not Repeatable

**Justification (if repeatable was chosen above)**

No Value

**Resources**

**Did you contact your departmental library liaison?**

No

**If yes, who is your departmental library liaison?**

No Value

**Did you contact the DEIA liaison?**

No

**Were there any DEIA changes made to this outline?**

No Value

**If yes, in what areas were these changes made:**

No Value

**Will any additional resources be needed for this course? (Click all that apply)**

- No

**If additional resources are needed, add a brief description and cost in the box provided.**

No Value