

GAME 197: GAME ASSET AND ENGINE INTEGRATION

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2026
Credits:	3
Total Contact Hours:	108
Lecture Hours :	36
Lab Hours:	72
Hours Arranged:	0
Outside of Class Hours:	72
Total Student Learning Hours:	180
Prerequisite:	GAME 192 and GAME 193.
Transferable to CSU:	Yes
Transferable to UC:	Yes - Proposed
Grading Method:	Standard Letter

Catalog Course Description

An intermediate 3D modeling class with a strong focus in low poly modeling, texture mapping and importing art assets into an industry standard game engine. Topics also include the basics of lighting an object, creating custom textures and presentation skills. 54 hours lecture and 18 hours laboratory. 36 lecture hours, 72 lab hours.

Course Objectives

- Create Game ready assets that are optimized for optimal performance in Game Engine.
- Create and Connect Props to in game shading networks.
- Analyze and apply optimized Maps for Texturing Mapping
- Create lighting to test shading networks and textures.

Major Course Content

1. Naming Conventions
 - a. Proper file types
 - b. Proper naming conventions
 - c. Project creation
 - d. Package / Kit Creation and Optimization
2. Tri/quad mesh creation and manipulation
 - a. Representing polygon meshes
 - b. Creating composite meshes
 - c. Techniques for maximizing quality while minimizing vertex/edge count
 - d. Collision detection
3. UV Mapping and Unwrapping surfaces and meshes
 - a. Unwrap, unfold, relax and normalize UV sets
 - b. Use Lattice, UV smudge tool and smooth UV tool
 - c. Cut and Sew UV's to add, subtract and normalize a mesh
 - d. Change and effect UV Layout to maximize the texture space based on the powers of 2.
 - e. Overlay and scale UV's to maximize texture space
 - f. Relative and absolute coordinates

4. Model props, assets and environments to specific size and poly restrictions based on the industry
 - Utilize all the polygon modeling tools to create assets
 - Export of files and type

Lab Content

Practicum Transfer Maps

1. Ambient Occlusion Maps
2. Light Maps
3. Normal Maps
4. Displacement Maps

Practicum Textures

1. Specular Maps
2. Opacity / Alpha Maps
3. Illumination Maps
4. Roughness Maps

Practicum Shader Networks

1. Lambert
2. Blinn
3. Phong/ Phong E
4. Ramp Shader
5. Anisotropic

Practicum Lighting

1. Ambient Lights
2. Directional
3. Point
4. Spot
5. Area
6. Volume
7. Skydome
8. Mesh Light
9. Photometric

Practicum 3D Assets

1. Technical Requirements
2. 3D Sculpting
3. Import Properties

Practicum UV Maps and Texture Baking

1. Types of UV Modifiers
 - a. Planar
 - b. Spherical
 - c. Cylindrical
 - d. Camera Projection
 - e. Normal Projection

Suggested Reading Other Than Required Textbook

Unreal, ZBrush and Maya Software manuals, online resources for 3D modeling

Examples of Required Writing Assignments

1 to 2 page essay on optimization polygon mesh models for game art and simulation.

Examples of Outside Assignments

Bring in correctly Modeled and optimized 3D models. Apply Textures and recreate shader networks inside of Game Engine.

Instruction Type(s)

Lab, Lecture