Course Information Form (CIF)

Course Code: CSC 236

Course Title: 3D Computer Animation V

Department: Business/Computer Science and Technologies
Effective Date: Summer 2026
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 10.0304
Repeatability: 0

Credit Hours

Catalog Notation: 3-2-4
Credit Hour Distribution:

Lecture: 3	Lab: 2	Clinical: 0	**Total: 4**

General Course Information

Catalog Description

Advanced topics in 3D lighting, rendering, and effects for 3D applications including gaming, film, visual effects, virtual and augmented reality, and related disciplines.

General Course Objectives

Equip students with the fundamental knowledge and skills in advanced 3D lighting, rendering, and visual effects for digital media areas including gaming, film, and interactive applications. Become proficient with techniques in standard professional 3D software packages. Apply cinematic design considerations in scene development.

Minimum Placement Levels

English	Reading	Math
None	None	None

Prerequisites

Credit in CSC 233

Methods of Evaluation

8-10 small-scale studies will be given to introduce and develop the student's understanding and proficiency of course concepts and skills. 5-6 large-scale projects will be regularly assigned to apply the concepts introduced in the studies. Project assignments form the basis of the student's portfolio work in 3D computer animation.

Instructional Materials and Additional Supplies

Taught in lab environment with specialized software and hardware. Regular upgrades of software and hardware expected annually.
Students are required to have a USB flash drive.

Course Content

General Learning Outcomes (GLOs)

- Creativity and Innovative Thinking: Students will design, present, and interpret materials, information, and ideas in innovative ways.
- Technology: Students will demonstrate the ability to evaluate, select, and appropriately use current and emerging tools.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Course Introduction	1. Identify course requirements, goals, expectations, and examples of course portfolio work.	1	1	0
Rendering Fundamentals	1. Describe and survey history of 3D rendering techniques and applications. 2. Apply 3D rendering techniques in current rendering platform.	4	2	0
Physically-based Lighting and Shadows	1. Describe techniques for designing and applying physically-based lighting and shadow techniques in scene development. 2. Apply techniques for designing and applying physically-based lighting and shadows in scene development.	6	5	0
Image-based Lighting and HDR	1. Describe techniques for designing and applying image-based lighting techniques and high dynamic range images in scene development. 2. Apply techniques for designing and applying image-based lighting and high dynamic range images in scene development.	4	3	0
Physically-based Shaders	1. Describe techniques for designing and applying physically-based shaders and materials in scene development. 2. Apply techniques for designing and applying physically-based shaders and materials in scene development.	4	2	0
Physically-based Texturing and Cameras	1. Describe techniques for designing and applying physically-based textures and advanced camera techniques in scene development. 2. Apply techniques for designing and applying physically-based textures and advanced camera techniques in scene development.	4	2	0
Advanced Rendering Topics	1. Describe advanced topics and techniques in 3D renderers and current rendering platform. 2. Explore and apply advanced topics and techniques in 3D renderers and current rendering platform.	2	1	0
Volume Rendering Fundamentals	1. Describe fundamental techniques involved in volume rendering. 2. Apply fundamental techniques involved in volume rendering.	2	1	0
Volume Rendering Data Sets	1. Describe techniques for volume rendering 3D data sets in scene development. 2. Apply techniques for volume rendering 3D data sets in scene development.	4	3	0
Volume Rendering Shaders	1. Describe techniques for designing and developing shaders for volume rendering. 2. Apply techniques for designing and developing shaders for volume rendering.	4	3	0
Fluid Effects Fundamentals	1. Describe fundamental techniques involved in developing 3D fluid effects. 2. Apply fundamental techniques involved in developing 3D fluid effects.	4	3	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Fluid Effects Simulations	1. Describe techniques for designing and developing simulations exhibiting 3D fluid effects in scene development. 2. Apply techniques for designing and developing simulations exhibiting 3D fluid effects in scene development.	4	3	0
Fluid Effects Rendering	1. Describe techniques for rendering 3D fluid effects. 2. Apply techniques for rendering 3D fluid effects.	2	1	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
45	30	0