APTECH 43 Course Outline as of Summer 2022

CATALOG INFORMATION

Dept and Nbr: APTECH 43 Title: COMPUTER ANIMATION
Full Title: Computer Modeling and Animation with 3ds Max
Last Reviewed: 1/25/2021

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	2.00	17.5	Lecture Scheduled	35.00
Minimum	3.00	Lab Scheduled	3.00	8	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	5.00		Contact Total	87.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 70.00 Total Student Learning Hours: 157.50

Title 5 Category:	AA Degree Applicable
Grading:	Grade Only
Repeatability:	00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:	
Formerly:	APTECH 53

Catalog Description:
This course covers the fundamentals of three-dimensional (3D) modeling and animation using Windows-based Autodesk 3ds Max software. Topics include: polygon and spline modeling, materials and texturing, keyframe and constraint-based animating, lighting, and rendering. Basic introductions to dynamic simulations, particle systems, character rigging and character animation are also included.

Prerequisites/Corequisites:

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: This course covers the fundamentals of three-dimensional (3D) modeling and animation using Windows-based Autodesk 3ds Max software. Topics include: polygon and spline modeling, materials and texturing, keyframe and constraint-based animating, lighting, and rendering. Basic introductions to dynamic simulations, particle systems, character rigging and

character animation are also included. (Grade Only)
Prerequisites/Corequisites:
Recommended:
Limits on Enrollment:
Transfer Credit: CSU;UC.
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**	Effective:	Inactive:
CSU GE:	**Transfer Area**	Effective:	Inactive:
IGETC:	**Transfer Area**	Effective:	Inactive:

CSU Transfer:	Transferable	Effective:	Fall 1998	Inactive:
UC Transfer:	Transferable	Effective:	Fall 2013	Inactive:

CID:

Certificate/Major Applicable:
Both Certificate and Major Applicable

COURSE CONTENT

Student Learning Outcomes:
At the conclusion of this course, the student should be able to:
1. Use 3ds Max software to produce three-dimensional (3D) models, scenes, and animations.
2. Create still-image and video renderings of 3D scenes within 3ds Max.

Objectives:
At the conclusion of this course, the student should be able to:
1. Comprehend 3D modeling and animation's role and usage in today's society
2. Effectively interface with the 3ds Max software program
3. Analyze models and scenes
4. Create and edit 3D models and scenes
5. Assign bitmap and procedural materials to 3D objects
6. Set and adjust lighting and shadows
7. Establish and control environmental factors within 3D scenes
8. Animate movement and characteristics of objects, lights, and cameras
9. Create basic dynamic simulations, particle systems, and effects
10. Apply 3D rendering principles and procedures

Topics and Scope:

I. Overview of the 3D Modeling and Animation Industry
   A. Gaming
   B. Motion pictures
   C. Architecture/construction/engineering
   D. Advertising
   E. Virtual Reality

II. The 3ds Max Software Interface
  A. Viewport navigation
  B. Command panels
  C. Time controls
  D. Menus and toolbars
III. Analysis of 3D Models and Scenes
  A. Component identification
  B. Analysis of procedures
  C. Evaluation of effectiveness
IV. Create and Edit 3D Models and Scenes
  A. Polygonal modeling
  B. Spline modeling
  C. Model deformation
V. Material Creation and Assignment
  A. The material editors: Compact and Slate
  B. Mapping coordinates and parameters
  C. Material and map types
  D. Substance plug-ins
VI. Lighting and Shadow Creation and Adjustment
  A. Omni, spot, and direct lighting
  B. Free and target lighting
  C. Ray-traced and shadow maps
  D. Photometric lighting
VII. Environmental Factors within 3D Scenes
  A. Environment maps
  B. Environmental effects
  C. Exposure control
VIII. Animating Objects, Lights, Cameras, and Controls
  A. Keyframe animation
  B. Constraint-based animation
  C. Character animation basics
IX. Dynamic Simulations and Effects
  A. MassFX fundamentals
  B. Basic particle systems
X. Rendering of 3D Objects and Animations
  A. Scanline renderer
  B. ART renderer
  C. Still image and video settings

The above Topics and Scope apply to both lecture and lab course components in an integrated format.

Assignment:

1. Project guide readings (20 - 26)
2. 3D modeling and animation projects (20 - 26)
3. Quizzes (2 - 4)
4. Final exam

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments are more appropriate for this course.	Writing 0 - 0%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

3D modeling and animation projects	Problem solving 65 - 80%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None	Skill Demonstrations 0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Quizzes and final exam	Exams 20 - 30%

Other: Includes any assessment tools that do not logically fit into the above categories.

Participation	Other Category 0 - 5%

Representative Textbooks and Materials:
Autodesk 3ds Max 2021: A Comprehensive Guide. 21st ed. Tickoo, Sham. CADCIM Technologies. 2020
Instructor-prepared materials