

DDP 144: 3D ANIMATION

Originator

mabril

Justification / Rationale

Including this 3D animation course will give students skills to enter in the post-film production industry, a strong labor market. This course can also serve as an elective in theatre for the sciences, set design and architecture.

Effective Term

Fall 2020

Credit Status

Credit - Degree Applicable

Subject

DDP - Digital Design & Production

Course Number

144

Full Course Title

3D Animation

Short Title

3D ANIMATION

Discipline**Disciplines List**

Art

Film Studies

Graphic Arts (Desktop publishing)

Multimedia

Modality

Face-to-Face

100% Online

Hybrid

Catalog Description

Students will learn the basics of industry standard 3D animation software, user interface, essential modeling, rendering, character set up, and animation tools and techniques. This course is intended to provide students with an understanding of theoretical concepts and will provide conceptually based guidelines that evoke personal creativity, and design fundamentals. This hands-on introductory course provides a basic overview of the tools used in the creation of 3D digital animation. Topics covered include modeling, character rigging, animation, shading, lighting and rendering. This course emphasizes the fundamental concepts of 3D digital animation as well as an understanding of the software. In addition to completing weekly exercises, students will apply the skills they learn to create an individual project.

Schedule Description

This hands-on course teaches the foundations 3D modeling software (Maya), user interface and essential modeling, rendering, character set up, and animation tools and techniques. Hands-on training is emphasized using Autodesk Suite.

Advisory: ART 003A, ART 005A, & ART 011A

Lecture Units

2

Lecture Semester Hours

36

Lab Units

1

Lab Semester Hours

54

In-class Hours

90

Out-of-class Hours

72

Total Course Units

3

Total Semester Hours

162

Prerequisite Course(s)

Advisory: ART 003A, ART 005A, & ART 011A

Required Text and Other Instructional Materials**Resource Type**

Book

Open Educational Resource

No

Author

Murdock, K, L

Title

Autodesk Maya 2017 Basics Guide

Publisher

SDC Publications

Year

2017

ISBN #

13-9781630570354

Resource Type

Web/Other

Open Educational Resource

Yes

Class Size Maximum

25

Entrance Skills

Develop the basic skills in the effective use of design and colors.

Requisite Course Objectives

ART 003A-Develop basic skills in the effective use of design and colors

Entrance Skills

Demonstrate a basic understanding of the human image as a subject in art from prehistoric times to the present.

Requisite Course Objectives

ART 005A-Demonstrate a basic understanding of the human image as a subject in art from prehistoric times to the present.

Entrance Skills

Assess and critique sculptural works in group, individual, and written contexts using relevant critique formats, concepts and terminology.

Requisite Course Objectives

ART 011A-Assess and critique sculptural works in group, individual, and written contexts using relevant critique formats, concepts and terminology

Course Content

- I. Pre-Production
- II. The 3D Process
- III. The 3D Space
- IV. Modeling Expanded
- V. Shading Expanded
- VI. Lighting Expanded
- VII. Animation Expanded
- VIII. Rendering Expanded
- IX. Post Production
- X. Major Historical Innovations
- XI. Portfolio

Lab Content

- I. Pre-Production
 - A. Storyboard Interpretation
 - 1. Element Movement Notations
 - 2. Camera Movement Notations
 - B. Text Notations
 - C. Production Meetings
 - 1. Responsibilities
 - 2. Conduct
 - 3. Editorial Checks
- II. The 3D Process
 - A. Setting Project Folder
 - 1. Naming Conventions
 - 2. New vs. Existing Projects
 - B. Modeling
 - 1. Polygon
 - 2. Spline-based
 - C. Shading
 - 1. Shader Issues
 - 2. Placement Issues
 - D. Lighting
 - 1. Types
 - 2. Relationships
 - E. Animation
 - 1. Key, In-between and Breakdown
 - 2. Path
 - 3. Deformation

- 4. Simple Rigs
- 5. Dynamic
- F. Rendering
 - 1. Standard Render
 - 2. Render with Alpha Channel for Composite
- III. The 3D Space
 - A. Cartesian
 - B. World Space
 - C. Object Space
- IV. Modeling Expanded
 - A. Skills
 - 1. Primitive Creation and Adjustment
 - 2. Process Creation
 - 3. Component Editing
 - 4. Spline Editing
 - B. Manipulation
 - 1. Position
 - 2. Rotation
 - 3. Scale
 - 4. Pivot Point
 - C. Edge Treatments
- V. Shading Expanded
 - A. Material Attributes
 - B. Layered Texturing
 - 1. Aging Techniques
 - 2. Multi-purpose Textures
 - C. Explicit UV Mapping
- VI. Lighting Expanded
 - A. Shadows
 - B. Reflection Maps
 - C. Glints and Glows
 - D. Lighting Schemes
- VII. Animation Expanded
 - A. Timeline Adjustments
 - B. Timing Graph Editor
 - C. IK Rigging
 - D. Path Animation Control
 - E. Squash and Bend Deformers
- VIII. Rendering Expanded
 - A. Settings
 - 1. Formats, Size, Duration
 - 2. Motion Blur
 - B. Rendering
 - 1. Test Render
 - 2. Shadow Layers (Alpha)
- IX. Post Production
 - A. Testing
 - 1. Importing Audio (In Maya for sync)
 - 2. Importing in Post Production software
 - B. Final Assembly
- X. Major Historical Innovations

- A. Film Effects
 - 1. Flats and Glass Painting
 - 2. Rear Projection
 - 3. Static Mattes
 - 4. Traveling Mattes
 - 5. Front Projection
 - 6. Bi-Pack Composites
 - 7. Green and Blue Screen
- B. Early Computer Graphics
 - 1. Military and Science Partnership
 - 2. Early Artists and Innovators
- C. 3D Computer Graphics
 - 1. Founding Production Houses
 - 2. Second-Generation Years
- D. The Modern Structure
 - 1. The Visual Effects Approach
 - 2. Preview Production Houses

XI. Portfolio

- A. Preparation of Presentation
- B. Credits

Course Objectives

Objectives	
Objective 1	Demonstrate the 3D production work flow, guided by pre-production assets, such as storyboards, sketches, treatments and scripts.
Objective 2	Employ the appropriate set of polygonal or patch-based modeling tools, as required by the form to be built and the pre-production assets.
Objective 3	Construct shading networks appropriate for the surface appearance required by the pre-production assets, considering the material's natural look and any additional aging called for.
Objective 4	Create appropriate movement behaviors that describe the action required by the assets and follows the principles of animation, allowing for timing changes.
Objective 5	Compose a lighting scheme appropriate for the subject, the action and the mood required by the assets and construct camera compositions with the settings, size and angle required.
Objective 6	Demonstrate control over alpha channels at rendering stage and successfully composite elements with one another in post-production.
Objective 7	Evaluate 3D animation's most important innovations throughout its history, giving examples where a new development influenced the nature of content and delivery.
Objective 8	Construct and customize an ever-improving portfolio that represents the very best work possible.

Student Learning Outcomes

Upon satisfactory completion of this course, students will be able to:	
Outcome 1	Evaluate 3D animation's most important innovations throughout its history, giving examples where a new development influenced the nature of content and delivery.
Outcome 2	Evaluate appropriate lighting scheme for the subject, the action and the mood required by the assets and construct camera compositions with the settings, size and angle required.
Outcome 3	Evaluate 3D production work flow, guided by pre-production assets, such as storyboards, sketches, treatments and scripts.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Lecture	Lectures will be provided on historical and contemporary approaches to digital art and media, as well as demonstrations on how to use software as it relates to the assignments.

Collaborative/Team	Students will critique as teams/groups on various projects/design challenges.
Demonstration, Repetition/Practice	Students will learn technical software and hardware applications and apply them in a series of assignment/design challenges.
Self-exploration	Students will explore their own conceptual approaches, ideas and perspectives to the assignments.
Participation	Students will participate in critiques, in class exercises and general feedback on visual examples.
Technology-based instruction	All course work uses current technology in the field, the students will learn the software and create physical and digital projects with the technology. Instructors will use the technology in demonstrations as it pertains to the assignments.
Laboratory	Students will use the MAC computer lab for the course assignments, or their personal computer with the appropriate software and hardware.
Skilled Practice at a Workstation	A large portion of the lab will be dedicated to time for students to create digital artwork on an individual workstation. Each student will need to be have access to a computer to participate in this course.

Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
Critiques	Students will participate in group critiques, addressing the requirements of the assignment as well as the creative exploration and graded with a rubric.	In Class Only
Student participation/contribution	Students will be graded in their participation at critiques and group discussions.	In and Out of Class
Product/project development evaluation	Students will create assignments with given criteria and will work to solve the design/art challenge as well as apply key fundamental compositions.	In and Out of Class
Tests/Quizzes/Examinations	Students will be quizzed on key art and media terminology including the principles and elements of design.	In and Out of Class
Mid-term and final evaluations	Students will have both a mid term and final evaluation. The culmination of the course will be a graded assignment/project or physical test of knowledge pertaining to software or hardware.	In Class Only
Self/peer assessment and portfolio evaluation	Students will use rubrics to self evaluate their own progress as well as evaluate the work of their peers.	In and Out of Class
Other	Students perform tasks based on instruction by working on chapter lessons/assignments.	In and Out of Class

Assignments

Other In-class Assignments

Active participation in critiques and presentations
Objective and performance-based quizzes (3-4)
Midterm and final exam

Other Out-of-class Assignments

1. Reading, approximately 20 - 30 pages per week
2. Weekly animation exercises
3. Five (5) computer-generated animations (to illustrate mastery of topics and techniques covered in class)

Grade Methods

Letter Grade Only

Distance Education Checklist

Include the percentage of online and on-campus instruction you anticipate.

Online %

50

On-campus %

50

Lab Courses

From the COR list, what activities are specified as lab, and how will those be monitored by the instructor?

Assignments, project and lessons from their book and upload to Canvas.

How will you assess the online delivery of lab activities?

Using rubrics on work submitted via Canvas.

Instructional Materials and Resources

Effective Student/Faculty Contact

Which of the following methods of regular, timely, and effective student/faculty contact will be used in this course?

Within Course Management System:

Timely feedback and return of student work as specified in the syllabus
Discussion forums with substantive instructor participation
Chat room/instant messaging
Regular virtual office hours
Private messages
Online quizzes and examinations
Video or audio feedback
Weekly announcements

External to Course Management System:

Direct e-mail
E-portfolios/blogs/wikis
Posted audio/video (including YouTube, 3cm mediasolutions, etc.)
Synchronous audio/video
Teleconferencing
Telephone contact/voicemail
USPS mail

For hybrid courses:

Scheduled Face-to-Face group or individual meetings
Field trips
Library workshops
Orientation, study, and/or review sessions
Supplemental seminar or study sessions

Other Information

Provide any other relevant information that will help the Curriculum Committee assess the viability of offering this course in an online or hybrid modality.

This course will also be a part of the Film Production program.

MIS Course Data

CIP Code

11.0803 - Computer Graphics.

TOP Code

061460 - Computer Graphics and Digital Imagery

SAM Code

C - Clearly Occupational

Basic Skills Status

Not Basic Skills

Prior College Level

Not applicable

Cooperative Work Experience

Not a Coop Course

Course Classification Status

Credit Course

Approved Special Class

Not special class

Noncredit Category

Not Applicable, Credit Course

Funding Agency Category

Not Applicable

Program Status

Stand-alone

Transfer Status

Transferable to CSU only

Allow Audit

No

Repeatability

No

Materials Fee

No

Additional Fees?

No

Approvals**Curriculum Committee Approval Date**

11/05/2019

Academic Senate Approval Date

11/14/2019

Board of Trustees Approval Date

12/19/2019

Chancellor's Office Approval Date

1/23/2020

Course Control Number

CCC000612182

Programs referencing this course

Digital Design Production AS Degree (<http://catalog.collegeofthedesert.eduundefined?key=126/>)

Digital Design Production Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined?key=127/>)

