

CS 78.1 Course Outline as of Spring 2020**CATALOG INFORMATION**

Dept and Nbr: CS 78.1 Title: 3D PRINTING

Full Title: 3D Printing

Last Reviewed: 3/13/2017

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

Total Out of Class Hours: 105.00

Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable

Grading: Grade or P/NP

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

Catalog Description:

This course will introduce students to the basics of working in a 3D environment, including scanning, editing, and printing 3D objects. Through lectures, demonstrations, and hands-on lab exercises, students learn the fundamentals of 3D and apply the learned concepts to modify and create 3D models.

Prerequisites/Corequisites:**Recommended Preparation:**

Eligibility for ENGL 100 or ESL 100 and Course Completion of CS 70.11A

Limits on Enrollment:**Schedule of Classes Information:**

Description: This course will introduce students to the basics of working in a 3D environment, including scanning, editing, and printing 3D objects. Through lectures, demonstrations, and hands-on lab exercises, students learn the fundamentals of 3D and apply the learned concepts to modify and create 3D models. (Grade or P/NP)

Prerequisites/Corequisites:

Recommended: Eligibility for ENGL 100 or ESL 100 and Course Completion of CS 70.11A

Limits on Enrollment:

Transfer Credit: CSU;

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 2016	Inactive:	Fall 2022
UC Transfer:		Effective:		Inactive:	

CID:

Certificate/Major Applicable:

Major Applicable Course

COURSE CONTENT

Student Learning Outcomes:

At the conclusion of this course, the student should be able to:

1. Create and manipulate simple objects in a 3D environment
2. Scan and print 3D objects

Objectives:

Upon completion of the course, students will be able to:

1. Distinguish between the two basic 3D modeling components - faces and edges.
2. Create simple 3D models using at least three basic modeling shapes.
3. Modify 3D models using at least three basic editing tools.
4. Apply pre-defined styles to 3D models.
5. Manipulate camera controls in order to see models from different angles.
6. Create realistic textures in Photoshop and apply them to a 3D model.
7. Import existing 3D models and add to existing projects.
8. Scan physical objects to create basic 3D models.
9. Print 3D objects.

Topics and Scope:

- I. Understanding 3D terminology
 - A. Solid vs. Surface modeling
 - B. Edges and faces
 - C. Orbiting a model
 - D. Contours
 - E. Perspective and scale
 - F. Textures
- II. Basic 3D model creation
 - A. Basic Modeling Shapes: Lines, rectangles, circles, and arcs

- B. Pushing and pulling faces and edges
- C. Selecting objects and object components
- III. Importing and Editing 3D models
 - A. Adding textures, color, and shadows
 - B. Using guides
 - C. Scaling and rotating objects
- IV. Using components and pre-designed styles and models
- V. Scanning and printing 3D objects
- VI. Camera Controls

Assignment:

1. Use at least three basic modeling shapes to create a series of 3D models, following guidelines given by the instructor
2. Modify a provided 3D model, using at least 3 basic editing tools
3. Create a simple 3-room house 3D model, and apply textures created in Photoshop to all exposed surfaces
4. Incorporate at least three models from an online source into a project in order to create a realistic scene
5. One midterm and one final exam
6. Written descriptions of steps to creating a 3D model

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.

Written descriptions to creating a 3D model

Writing
0 - 20%

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

None

Problem solving
0 - 0%

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

Class projects and skills demonstrations

Skill Demonstrations
40 - 60%

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

Midterm and final exams

Exams
25 - 40%

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

Class participation

Other Category
0 - 10%

Representative Textbooks and Materials:

SketchUp 2014 for Dummies. Chopra, Aidan. Wiley. 2014.