DRFT 016: CAD APPLICATIONS

Proposer:

Name:	Email:
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Effective Term:
Spring 2022

Credit Status:
Credit - Degree Applicable

Subject:
DRFT - Drafting

Course Number:
016

Catalog Title
CAD Applications

Catalog Description
This is an advanced computer assisted drafting course that explores parametric solid modeling. Techniques include modeling tools, assembly modeling, and working with drawing views.

Advisory on Recommended Preparation:
DRFT 114 and DRFT 115 or equivalent college courses with a minimum grade of C. Prior work experience using AutoCAD and/or SolidWorks.

Method of Instruction:
Distance Education
Laboratory
Lecture and/or Discussion

Course Units/Hours:

Course Units Minimum:
4

Lecture Hours Minimum (week)
3

Lab Hours Minimum (week)
3

Total Contact Hours Minimum (semester)
105

Total Outside Hours Minimum (semester)
105

Total Student Learning Minimum Hours (semester)
210

Repeatability:
No

Open Entry/Exit:
No

Field Trips:
Not Required

Grade Mode:
Standard Letter

TOP Code:
095340 - * Mechanical Drafting

SAM Code:
C - Clearly Occupational

Course Content

Methods of Assessment:
Portfolio Evaluation
Problem solving assignments or activities
Project
Short answer quizzes or exams
Skill demonstrations

Course Topics:

	Course Topics
1	AUTOCAD: A. Introduction to 3D Modeling using AUTOCAD Software; B. Creating Primitive & Composite Models using various Tools & Commands; C. Viewing & Displaying 3D Models; D. Adding Text & Dimensioning to Solid Models in 3D; E. Creating Solid Models using Extrusions, Revolutions, Sweeps & Lofts; F. How to Edit Solid Models; G. Understanding Visual Styles in Basic Rendering; H. Adding Materials to 3D Objects in AUTOCAD; I. Understanding Lighting & Advanced Render Settings; J. Understanding Camera Settings to Create 3D Walk-throughs & Flybys.
2	SOLIDWORKS: A. Introduction to 3D Modeling using SOLIDWORKS Software; B. Creating a Standard Drafting Environment and Modeling Template; C. Creating Basic Part Models using various Tools and Commands; D. Using Basic Parts to create Multi-Part Assemblies; E. Adding Text and Dimensions to Models, Parts or Assemblies in 3D; F. Creating Models, Parts & Assemblies using Extrusions, Revolutions, Sweeps and Lofts; G. How to Edit Models, Parts and Assemblies; H. How to extract 2D Drawings from 3D Part and Assembly Drawings

Course Objectives:

	Course Objectives
1	AUTOCAD: A. Define maintain User-defined coordinate systems to aid in the construction of 3D Objects.
2	AUTOCAD: B. Create Use viewports
3	AUTOCAD: C. Create Edit 2D Regions 3D Solid models.
4	AUTOCAD:D. Use a variety of3D display techniques.
5	AUTOCAD: E. Create 3D Surfaces using a variety of techniques.
6	AUTOCAD: F. Render a 3D model with a variety of lights materials.
7	SOLIDWORKS A. Create a Standard work modeling environment.
8	SOLIDWORKS: B. Create Part models using various Basic Tools Commands.
9	SOLIDWORKS: C. Create Multi-Part Assemblies from Basic Parts.
10	SOLIDWORKS: D. Add Text Dimensions to 3D Models, Parts Assemblies.
11	SOLIDWORKS: E. Create Parts Assemblies using Extrusions, Revolutions, Sweeps Lofts.

12	SOLIDWORKS: F. Edit Models, Parts Assemblies.
13	SOLIDWORKS: G. Extract 2D Drawings from an assembled 3D Model, Part or Assembly.

Course Outcomes:

	Course Outcomes
1	AutoCAD: Given an instructor lecture, textbook readings, and a computer software demonstration, students will be able to describe the processes involved in preparing a computer-generated pictorial image.
2	AutoCAD: Given CAD instruction, students will be able to create sweep and cut sweep features.
3	AutoCAD: Students will submit an industry & university standard portfolio of all work created in the course. The quality of this portfolio will be factored in to the student's final grade
4	Solidworks: Given an instructor lecture, textbook readings, and a computer software demonstration, students will be able to describe the processes involved in preparing a computer-generated pictorial image.
5	Solidworks: Given an instructor lecture, textbook readings, and a computer software demonstration, students will be able to create multi-part assemblies from basic parts.
6	Solidworks: Given an instructor lecture, textbook readings, and a computer software demonstration, students will be able to extract 2D drawings from an assembled 3D model, part or assembly.
7	Solidworks: Students will submit an industry & university standard portfolio of all work created in the course. The quality of this portfolio will be factored in to the student's final grade

Assignments:

Assignment Type:	Details
Reading	Read assigned chapters from the text book each week. Students will read, understand and follow instructions for each drawing assignment
Writing	Students are required to complete weekly Chapter review exams.
Homework	Students are assigned weekly graphic problems to complete.
Lab	Students are required to draw the solutions to the graphic problems using proper drafting techniques.

Textbooks or other support materials

Resource Type:	Details
Books	AutoCAD and Its Applications Comprehensive 2020 Terence M. Shumaker; David A. Madsen; Jeffrey A. Laurich; J. C. Malitzke; Craig P. Black; Adam M. Ferris Goodheart-Willcox 27TH 2020 978-1635638660
Books	Beginner's Guide to SolidWorks 2018 - Level I Alejandro Reyes MSME, CSWP, CSWI SDC PUBLICATIONS 2012 978-1-58503-698

Transferable to CSU

Yes - Approved

CSU General Education

Transferable to CSU

Transferable to UC

Yes - Approved

UC/IGETC General Education

Transferable to UC

Other Degree Attributes

Degree Applicable
Not a Basic Skills Course

Materials Fee:

20

Distance Learning Addendum
DRFT016 DLA Form .pdf

Banner Title:
CAD Applications

Curriculum Committee Approval Date:
08/25/2021

Academic Senate Approval Date:
09/08/2021

District Governing Board Approval Date:
10/11/2021

Course Control Number:
CCC000585739