APTECH 46 Course Outline as of Summer 2022

CATALOG INFORMATION

Dept and Nbr: APTECH 46 Title: INTRO TO CAD
Full Title: Introduction to Computer-Aided Drafting
Last Reviewed: 8/14/2023

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	2.00	Lecture Scheduled	2.00	17.5	Lecture Scheduled	35.00
Minimum	2.00	Lab Scheduled	0.50	4	Lab Scheduled	8.75
		Contact DHR	0		Contact DHR	0
		Contact Total	2.50		Contact Total	43.75
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 70.00 Total Student Learning Hours: 113.75

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 56

Catalog Description:
Introduction to Computer-Aided Drafting (CAD) utilizing the AutoCAD software program. Areas covered include: program organization, program commands and tools, view navigation, drawing set-up, geometric construction/editing, orthographic projection, dimensioning and text annotations, printing/plotting, and an introduction to 3-dimensional drafting/design.

Prerequisites/Corequisites:
Course Completion or Current Enrollment in APTECH 45 OR INDE 50 OR HORT 93

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: Introduction to Computer-Aided Drafting (CAD) utilizing the AutoCAD software program. Areas covered include: program organization, program commands and tools, view navigation, drawing set-up, geometric construction/editing, orthographic projection, dimensioning and text annotations, printing/plotting, and an introduction to 3-dimensional drafting/design. (Grade Only)

Prerequisites/Corequisites: Course Completion or Current Enrollment in APTECH 45 OR INDE 50 OR HORT 93
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 1988	Inactive:
UC Transfer:	Transferable	Effective:	Fall 1999	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. Produce CAD projects that utilize geometric construction/editing, orthographic projection, dimensioning and text annotations.
2. Produce prints/plots from student prepared CAD files.

Objectives:
At the conclusion of this course, the student should be able to:
1. Demonstrate knowledge of AutoCAD program organization.
2. Execute file management operations within the Windows and AutoCAD interface.
3. Execute CAD drafting/design commands.
4. Set up drawing environments with AutoCAD.
5. Utilize geometric positioning tools when executing precise drafting/design work.
6. Generate and edit geometric constructions, dimensions, and text annotations.
7. Generate and edit multi-view and orthographic projection drawings.
8. Demonstrate proficiency using AutoCAD blocks.
9. Effectively control printing/plotting of AutoCAD drawing files.
10. Construct a 3D model.

Topics and Scope:

I. Introduction to the Computer as a Drafting/Design Tool with Emphasis on Hardware and Software
- A. Windows desktop and Windows File Explorer navigation
- B. Mouse usage
- C. Keyboard entry

D. File management
II. Accessing AutoCAD Commands via: Ribbon, Toolbars, Palettes and Keyboard
III. Setting up the Drawing Environment: Sheet Size, Units, Model/Layout Tabs, Layers, Linetypes
and Lineweights
IV. Geometric Construction and Positioning Tools
A. Object snap
B. Directional distance entry
C. Polar tracking
D. Dynamic input
E. Object tracking
F. Grid and snap
G. From and point filters
V. Geometric Constructions
A. Tangent arcs
B. Polygons
C. Ellipses
D. Concentric arcs
E. Parallel and perpendicular lines
F. Polar and rectangular arrays
G. Polylines
VI. Multi-View Drawings
A. Xlines for view to view projection layout
B. Correct depiction of visible, hidden, and symmetrical features at individual views
C. Linear, radial, and angular dimensions
VII. AutoCAD Blocks: Creating, Inserting and Redefining Blocks
VIII. Plotting: Sheet Size, Plot Scale, Lineweights and Color
IX. 3D Surface Modeling: Wire-frame and 3Dfaces

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

Assignment:

Lecture-Related Assignments:
1. Assignment reading (2-10 pages per CAD assignment)
2. Quizzes (0-4)
3. Final exam

Lab-Related Assignments:
1. CAD assignments (12-15)

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.

CAD assignments	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 - 35%

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

None	Other Category 0 - 0%

Representative Textbooks and Materials:
AutoCAD 2018: A Problem - Solving Approach, Basic and Intermediate. Tickoo, Sham. CADCIM Technologies. 2017
AutoCAD and Its Applications Basics 2018. 25th ed. Shumaker, Terence and Madsen, David. Goodheart-Willcox. 2017
Instructor prepared materials