APTECH 46 Course Outline as of Fall 2008

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:	39 - Total 2 Times
Also Listed As:	
Formerly:	APTECH 56

Catalog Description:
Introduction to computer-aided drafting utilizing the AutoCAD software program. Course will teach the student how to use this industry standard software to execute professional quality drafting/design work. Particular attention will be given to the components of a CAD system, the software interface, drawing set-up, geometric construction & editing, orthographic projection, dimensioning, plotting, and an introduction to 3-dimensional drafting/design.

Prerequisites/Corequisites:
Course Completion or Current Enrollment in APTECH 45 (or APTECH 55 or IED 55)

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: Intro to computer-aided drafting utilizing the AutoCAD software program. Areas covered include: drawing set-up, geometric construction & editing, orthographic projection, dimensioning, plotting, and an introduction to 3-dimensional drafting/design. Course will teach students how to use this industry standard software to execute professional quality work. (Grade

Only)
Prerequisites/Corequisites: Course Completion or Current Enrollment in APTECH 45 (or APTECH 55 or IED 55)
Recommended:
Limits on Enrollment:
Transfer Credit: CSU;UC.
Repeatability: Total 2 Times

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

Outcomes and Objectives:
Upon completion of this course, the students will be able to:
1. Utilize computer hardware peripherals to execute drafting/design work
2. Execute file management commands within the Windows and AutoCAD interface
3. Execute drafting/design work by interfacing with AutoCAD Software options
4. Set up drawing environments with AutoCAD
5. Utilize geometric positioning tools when executing precise drafting/design work
6. Generate and modify geometric constructions
7. Generate and modify multi-view drawings
8. Demonstrate proficiency using AutoCAD "Blocks"
9. Effectively control plotting of AutoCAD drawing files
10. Construct a 3D surface model
11. Repeating students will:
   a. Utilize new software releases to accomplish CAD projects
   b. Interface with new options in the software

Topics and Scope:

I. Introduction to the computer as a drafting/design tool with emphasis on hardware and software
   A. Windows desktop navigation
   B. Mouse usage
   C. Keyboard entry
   D. File management
II. Accessing AutoCAD commands via:

A. Toolbars
B. Pulldown menus
C. Tool palettes
D. Keyboard

III. Setting up the drawing environment
A. Sheet size
B. Units
C. Model space and Layouts
D. Layers, linetypes, and lineweights

IV. Geometric construction and positioning tools
A. Osnap
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
A. Creating blocks
B. Inserting blocks
C. Redefining blocks

VIII. Plotting
A. Sheet size
B. Plot scale
C. Lineweights
D. Color

IX. 3D surface modeling
A. Wire-frame
B. 3Dfaces

X. New releases of CAD software
A. User interface
B. Software options
C. New topics
D. Applications

Assignment:

1. Reading, approximately 10 - 25 pages per week.
2. Weekly CAD exercises in lab.

3. Homework: Twelve (12) computer generated CAD drawings (1 or more drawings per assignment to illustrate mastery of topics and techniques covered in class).
4. Objective and performance-based quizzes (3-4).
5. Final exam: objective and performance based.
6. Repeating students will accomplish assignments utilizing new release(s) of CAD software to enhance their skills.

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 and skill demonstrations 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 exercises	Problem solving 10 - 20%

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

Performance exams, CAD drawings	Skill Demonstrations 45 - 60%

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

Multiple choice, True/false, Matching items, Completion, Computer generated drawings	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:
1. AutoCAD 2007: A Problem Solving Approach. Tickoo, Sham. AutoDesk Press: 2007.
2. Using AutoCAD 2007. Grabowski, Ralph. AutoDesk Press: 2007.
3. Instructor prepared materials.