APTECH 45 Course Outline as of Fall 2019

CATALOG INFORMATION

Dept and Nbr: APTECH 45 Title: BASIC DRAFTING SKLS
Full Title: Basic Drafting Skills
Last Reviewed: 5/8/2023

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	1.50	Lecture Scheduled	1.00	17.5	Lecture Scheduled	17.50
Minimum	1.50	Lab Scheduled	1.50	4	Lab Scheduled	26.25
		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: 35.00 Total Student Learning Hours: 78.75

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 55

Catalog Description:
A course emphasizing drawing-based manual drafting with a cursory introduction to Computer-Aided Drafting (CAD) for comparison. Topics include proper use of drafting tools, development of linework and lettering skills, procedures for geometric constructions, freehand drafting/sketching, orthographic projection, and isometric drawing.

Prerequisites/Corequisites:

Recommended Preparation:
High School Geometry

Limits on Enrollment:

Schedule of Classes Information:
Description: A course emphasizing drawing-based manual drafting with a cursory introduction to Computer-Aided Drafting (CAD) for comparison. Topics include proper use of drafting tools, development of linework and lettering skills, procedures for geometric constructions, freehand drafting/sketching, orthographic projection, and isometric drawing. (Grade Only)
Prerequisites/Corequisites:

Recommended: High School Geometry
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 1989	Inactive:
UC Transfer:	Transferable	Effective:	Fall 1991	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. Describe the role of drawing and drafting in contemporary industries
2. Utilize manual drafting equipment to produce technical drawings
3. Compare manual drafting to Computer-Aided Drafting (CAD) methods

Objectives:
At the conclusion of this course, the student should be able to:
1. Describe drafting career and employment opportunties in contemporary industries
2. Select appropriate drafting equipment and supplies
3. Properly utilize drafting tools in the production of drafting projects
4. Produce consistent linework on drafting projects
5. Produce legible lettering in drafting projects
6. Graphically execute geometric constructions
7. Execute sketching and freehand drafting
8. Develop orthographic projections and isometric drawings
9. Utilize dimensioning conventions
10. Prepare hand-drafted working drawings
11. Compare manual-drafting to CAD-drafting processes

Topics and Scope:

I. Introduction to Contemporary Drafting
   A. History of the profession
   B. Drafting occupations and industries
   C. Language of drawing
   D. Design process
   E. Contemporary drafting

F. Types of basic engineering graphics
II. Drafting Equipment and Supplies
A. Conventional drafting supplies
B. Conventional drafting equipment
C. Production of copies and prints
III. Drafting Conventions and Formats
A. Linework
1. Conventions
2. Use of tools
3. Drawing procedure
4. Construction linework
5. Reproducible linework
B. Lettering
1. Conventions
2. Lettering shapes
3. Lettering practice
C. Drafting conventions
D. Drawing formats
IV. Geometric Construction
A. Use of compass and other tools for geometric constructions
B. Basic geometric drafting techniques
1. Dividing lines
2. Constructing regular polygons
C. More complex geometric construction
1. Tangencies of lines, arcs and circles
2. Fillets
V. Freehand drawing
A. Sketching for technical drawings
B. Freehand drafting techniques
VI. Introduction to Multiview Orthographic Projection
A. Principles
1. Selection of views
2. Freehand three-view drawings
3. Planes of projection
4. Angles of projection
5. Visualization
B. Drawing procedures
C. Orthographic projections from incomplete data
D. Isometric drawing
1. Introduction to isometrics
2. Drawing isometrics using instruments
VII. Dimensioning and Tolerancing Conventions
A. Systems of dimensioning
B. Dimensioning elements
C. Dimensioning guidelines
D. Tolerancing basics
E. Surface finish notation
VIII. Overview of CAD applications - Comparison of Manual Drafting to CAD

All topics are covered in the lecture and lab portions of the course.

Assignment:

Lecture-Related Assignments:
1. Weekly reading assignments (1-5 pages)
2. Quizzes, skills-based and/or problem-solving based (1-3)
3. Final exam

Lab-Related Assignments:
1. Linework and lettering exercises (2-5)
2. Manually drafted technical drawings (6-8)

Lecture- and Lab-Related Assignments:
1. Freehand drawing exercises (4-8)
2. Geometric construction exercises (5-10)
3. Orthographic and isometric projection sketches (5-10)

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.

Exercises, sketches, and drawings	Problem solving 60 - 70%

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

Skill Quizzes	Skill Demonstrations 5 - 10%

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

Other quizzes and final exam	Exams 15 - 25%

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

Attendance and participation	Other Category 0 - 10%

Representative Textbooks and Materials:
Fundamentals of Modern Drafting. 2nd ed. Wallach, Paul Ross. Cengage Learning. 2015