APTECH 45 Course Outline as of Spring 2011

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:
An introduction to basic manual drafting skills, and an overview of CAD applications. Topics include drafting tools, development of linework and lettering skills, procedures for executing geometric constructions, techniques of freehand drafting, and fundamentals of orthographic projections and isometric drawing.

Prerequisites/Corequisites:

Recommended Preparation:
High School Geometry.

Limits on Enrollment:

Schedule of Classes Information:
Description: An introduction to basic manual drafting skills, and an overview of CAD applications. Topics include drafting tools, development of linework and lettering skills, procedures for executing geometric constructions, techniques of freehand drafting, and fundamentals of orthographic projections 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

Outcomes and Objectives:
1. Describe types of drafting applications in contemporary settings.
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 in assigned drafting exercises.
7. Execute freehand drafting in drafting projects.
8. Develop orthographic projections and isometric drawings in completing drafting projects.
9. Utilize dimensioning conventions appropriately in a drafting project.
10. Prepare hand-drafted working drawings.
11. Describe the relationship of manual and CAD drafting.

Topics and Scope:

I. Introduction to contemporary drafting
  A. History of the profession
  B. Today's drafters 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. How to make a print
III. Drafting conventions and formats
  A. Linework

1. conventions
2. use of tools
3. drawing procedure
4. vocabulary of reproducible linework

B. Lettering
1. conventions
2. letter forms
3. practice lettering

C. Drafting conventions
D. Drawing formats

IV. Geometric construction
A. How to use a compass
B. Basic geometric drafting techniques
1. dividing lines
2. constructing triangles, hexagons and octagons

C. More complex geometric construction
1. tangents
2. constructing forms by figuring out missing data

V. Freehand drawing

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 and isometric drawing
D. Orthographic projections from incomplete data
E. Isometric drawing
1. Introduction to isometrics
2. Drawing isometrics using instruments

VII. Dimensioning conventions and surface finishes
A. Systems of dimensioning
B. Dimensioning elements
C. Dimensioning guidelines

VIII. Overview of CAD applications
A. Manual drafting versus CAD
B. 2D & 3D applications

Assignment:

Representative assignments:
1. Reading assignments, 15 - 20 pages per week
2. 8-10 Linework and lettering exercises
3. 8-10 Freehand drawing exercises
4. 10-15 Geometric constructions
5. 5-7 Orthographic and isometric projections
6. 6-8 Manual drafting projects to be completed during the lab portion of the class and outside of class time
7. Quizzes (1-3); final exam
8. Participation

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.

Manual drafting projects	Problem solving 20 - 35%

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

Linework, freehand, geometric and orthographic exercises, constructions and projections	Skill Demonstrations 40 - 60%

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

Objective examinations (multiple choice, true/false, matching items, completion), quizzes, final exam	Exams 10 - 30%

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

Participation	Other Category 5 - 10%

Representative Textbooks and Materials:
Fundamentals of Modern Drafting. Wallach, Paul Ross. Delmar, 2009.