Engineering Graphics

For each of the sections that follow, students may be required to analyze, recall, explain, interpret, apply, or evaluate the particular concepts being taught.

GRAPHICS IN ENGINEERING IN AMERICAN SOCIETY

- describe and list examples of graphic communications

TECHNICAL SKETCHING

- discuss the importance of placing ideas on paper by means of technical sketches
- sketch various lines and geometric shapes
- participate in activities designed to produce finished engineering sketches

TOOLS AND TECHNIQUES OF DRAFTING

- identify the basic drafting tools used by engineers
- explain how to lay out drawings to scale
- select the appropriate drafting paper
- develop appropriate lettering techniques for engineering drawings
- use the standard line symbols for engineering drawings

COMPUTER AIDED DESIGN AND ENGINEERING

- explain the advantages of using computers in design and engineering
- list the purpose of each component in the CAD system
- investigate the CAD functions and demonstrate the use of each
- demonstrate the various ways to produce a drawing using CAD

GEOMETRIC FIGURES AND CONSTRUCTIONS

- explain the importance of geometry in engineering design
- layout two-dimensional shapes
- recognize the basic geometric solids
- perform the basic geometric construction
- locate tangent points on geometric figures
- apply CAD applications to construct geometric figures

MULTI-VIEW DRAWING

- define the purpose of multi-view drawings
- apply the principles of orthographic projection
- layout multi-view drawings
- differentiate between first angle and third angle projection

- apply the CAD system to generate multi-view drawings

DIMENSIONING

- differentiate between the various dimensioning techniques
- demonstrate the dimensioning of various geometric shapes that engineered products are composed of
- apply both size and location dimensions to a drawing using appropriate dimensioning standards
- record surface texture on a drawing
- dimension a drawing using CAD application

PICTORIAL DRAWING

- list and describe the three types of pictorial drawings
- complete an oblique, isometric, and perspective drawing
- dimension a pictorial drawing
- generate pictorial drawings using CAD applications

REPRODUCTION OF DRAWINGS

- list and discuss the basic methods of reproducing engineering drawings
- explain how computer technology has changed the way engineers reproduce and store drawings

APPLICATION OF ENGINEERING ACTIVITIES

- use critical thinking and problem solving techniques to solve an engineering problem
- utilize the knowledge and skills learned throughout the course to design a problem solution
- build and test a design solution to a given engineering problem