

# Drafting and Design

Students recognize historical and current events related to engineering design and their effects on society. **DFT1**

- 1 Know historical and current events that have relevance to engineering design. **DFT1.1**
- 2 Understand the development of graphical language in relation to engineering design. **DFT1.2**

Students understand the effective use of engineering design equipment. **DFT2**

- 1 Use the appropriate methods and techniques for employing all engineering design equipment. **DFT2.1**
- 2 Apply conventional engineering design processes and procedures accurately, appropriately and safely. **DFT2.2**
- 3 Apply the concepts of engineering design to the tools, equipment, projects and procedures of engineering and design projects. **DFT2.3**

Students understand measurement systems as they apply to engineering design. **DFT3**

- 1 Know how the various measurement systems are used in engineering drawings. **DFT3.1**
- 2 Understand the degree of accuracy necessary for engineering design. **DFT3.2**

Students understand the effective use of engineering design equipment. **DFT4**

- 1 Understand the commands and concepts necessary for producing drawings through traditional or computer-aided means. **DFT4.1**
- 2 Understand the orthographic projection process for developing multiview drawings.. **DFT4.2**
- 3 Understand the various techniques for viewing objects. **DFT4.3**
- 4 Use the concepts of geometric construction in the development of design drawings. **DFT4.4**
- 5 Apply pictorial drawings derived from orthographic multiview drawings and sketches and from a solid modeler. **DFT4.5**

Students know various object-editing techniques and CAD programs. **DFT5**

- 1 Understand the commands and concepts necessary for editing engineering drawings. **DFT5.1**
- 2 Know the various object-altering techniques. **DFT5.2**

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**3 Know the CAD components and the operational functions of CAD systems. DFT5.3**

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**4 Apply two-dimensional and three-dimensional CAD operations in creating working and pictorial drawings, notes and notations. DFT5.4**

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**5 Understand how to determine properties of drawing objects. DFT5.5**

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**Students understand and apply proper dimensioning to drawings. DFT6**

**1 Know a variety of drafting applications and understand the proper dimensioning styles for each. DFT6.1**

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**2 Apply dimensioning to various objects and features. DFT6.2**

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**3 Edit a dimension by using various editing methods. DFT6.3**

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**Students understand sectional view applications and functions. DFT7**

**1 Understand the function of sectional views. DFT7.1**

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**2 Use a sectional view and appropriate cutting planes to clarify hidden features of an object. DFT7.2**

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**Students understand the tolerance relationships between mating parts. DFT8**

**1 Understand what constitutes mating parts in engineering design. DFT8.1**

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**2 Use tolerancing in an engineering drawing. DFT8.2**

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**3 Interpret geometric tolerancing symbols in a drawing. DFT8.3**

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**Students understand the methods of inserting text into a drawing. DFT9**

**1 Understand the processes of lettering and text editing. DFT9.1**

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**2 Develop drawings using notes and specifications. DFT9.2**

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**3 Understand the methods of title block creation. DFT9.3**

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**Students understand the sketching process used in concept development. DFT10**

**1 Understand the process of producing proportional two- and three dimensional sketches and designs. DFT10.1**

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**2 Use drawings sketching techniques as they apply to a variety of architectural and engineering models. DFT10.2**

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**3 Use freehand graphic communication skills to represent conceptual ideas, analysis and design concepts. DFT10.3**

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