Iowa CTE

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 ob… te… pr…	1 **Understand the commands and concepts necessary for editing engineering …rawings.** DFT5.1 **…now 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
	4 Apply two-dimensional and three-dimensional CAD operations in creating working and pictorial drawings, notes and notations. DFT5.4
	5 Understand how to determine properties of drawing objects. DFT5.5
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
	2 Apply dimensioning to various objects and features. DFT6.2
	3 Edit a dimension by using various editing methods. DFT6.3
Students understand sectional view applications and functions. DFT7	1 Understand the function of sectional views. DFT7.1
	2 Use a sectional view and appropriate cutting planes to clarify hidden features of an object. DFT7.2
Students understand the tolerance relationships between mating parts. DFT8	1 Understand what constitutes mating parts in engineering design. DFT8.1
	2 Use tolerancing in an engineering drawing. DFT8.2
	3 Interpret geometric tolerancing symbols in a drawing. DFT8.3
Students understand the methods of inserting text into a drawing. DFT9	1 Understand the processes of lettering and text editing. DFT9.1
	2 Develop drawings using notes and specifications. DFT9.2
	3 Understand the methods of title block creation. DFT9.3
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
	2 Use drawings sketching techniques as they apply to a variety of architectural and engineering models. DFT10.2
	3 Use freehand graphic communication skills to represent conceptual ideas, analysis and design concepts. DFT10.3