

Connecticut CTE

# **Computer Aided Drafting and Design (Grades 9-12)**

## Computer Aided Drafting and Design

### A Computer Aided Drafting and Design CADD

- 1 Demonstrate an understanding of the historical and current events related to CADD and the impact on society. CADD.01
  - a Develop a timeline showing important periods that have significance to CADD and explain the impact on society. CADD.01.01
  - b Evaluate current events that have relevance to process digital information. CADD.01.02
  - c Describe the development of graphic language in a digital age. CADD.01.03
  - d Explain the significance of the development Computer Aided Drafting and Design had on society. CADD.01.04
- 2 Analyze the use of current CADD design technology. CADD.02
  - a Apply conventional Computer Aided Drafting and Design processes and procedures accurately, appropriately, and safely. CADD.02.01
  - b Describe physical objects as geometric entities.\* CADD.02.02
  - c Describe and demonstrate the process of using a mechanical or electronic caliper accurately as required by the design intent.\*(A2) CADD.02.03
  - d Describe and demonstrate the use of graphic communication skills through sketching.\*(A3) CADD.02.04
  - e Evaluate and select appropriate method of communication for a given problem.\* CADD.02.05
  - f Send and access information through a network.\*(A4) CADD.02.06
  - g Express a design of an object as a 3D model.\*(A5) CADD.02.07
  - h Export and import images/files in a variety of file formats\*(A6) CADD.02.08
  - i Evaluate the choice and placement of dimensions, notes and annotations to clearly communicate design intent.\*(A7) CADD.02.09
  - j Revise a design and update finished drawings appropriately.\*(A8) CADD.02.10
  - k Identify basic geometric elements (e.g., line, circle, rectangle, sphere, and cube).\* (A9) CADD.02.11
  - l Describe objects as geometric entities.\*(A1) CADD.02.12
  - m Describe and apply the following basic geometric concepts to building 3D models: tangent and parallel concentric.\*(A10) CADD.02.13
- 3 Utilize measurement and annotation systems as they apply to CADD technology design. CADD.03
  - a Explain how the various measurement systems are used in CADD drawings. CADD.03.01
  - b Describe the measurement standards used in the manufacturing industry. CADD.03.02

- c Determine the proper dimensioning styles for a variety of applications. CADD.03.03
  - d Apply dimensioning to various objects and features. CADD.03.04
  - e Edit a dimension by using various editing methods. CADD.03.05
  - f Demonstrate the processes of lettering and text editing. CADD.03.06
  - g Develop drawings using notes and specifications. CADD.03.07
  - h Demonstrate the methods of creating a title block. CADD.03.08
- 4 Identify, describe, and utilize the basic hardware and operating systems used in CADD. CADD.04
- a Identify and describe various types of hardware and software.\*(B11) CADD.04.01
  - b Identify and describe the purpose of operating system components.\*(B12) CADD.04.02
  - c Define and apply computer terminology\*(B13) CADD.04.03
  - d View file names of a storage device.\*(C14) CADD.04.04
  - e Store, copy, move, and retrieve information to/from various drives.\*(C15) CADD.04.05
  - f Rename and backup files\*(C16) CADD.04.06
  - g Identify the hardware requirements of a given CADD software package. CADD.04.07
- 5 Utilize Proper projection techniques to develop orthographic and pictorial drawings. CADD.05
- a Understand the commands and concepts necessary for producing drawings through traditional or computer-aided means. CADD.05.01
  - b Understand the orthographic projection process for developing multi-view drawings. CADD.05.02
  - c Differentiate the various techniques for viewing objects. CADD.05.03
  - d Use the concepts of geometric construction in the development of design drawings. CADD.05.04
  - f Create orthographic, isometric, section, and auxiliary views.(E25) CADD.05.06
  - g Explain the Cartesian Coordinate System.\*(E20) CADD.05.07
  - h Describe the process for setting and editing drawing elements.\*(E21) CADD.05.08
  - i Create and edit line types, colors and layers/levels.\*(E22) CADD.05.09
  - j Create and edit basic geometry.\*(E23) CADD.05.10
  - k Place and edit text and fonts.\*(E24) CADD.05.11
  - l Explain and demonstrate the process for creating orthographic, isometric, section views, and auxiliary view.\* CADD.05.12
  - m Place and edit dimensions.\*(E26) CADD.05.013
  - n Generate a 2-D multi-view drawing.\*(E27) CADD.05.14

- o Generate a pictorial drawing.\*(E28) CADD.05.15
  - p Scale and print hard copy of an output device.\*(E29) CADD.05.16
  - q Explain the use and need for scaled drawings.\*(E30) CADD.05.17
- 6 Demonstrate use and application of alternate view applications and functions. CADD.06
- a Identify the function of alternate views. CADD.06.01
  - b Demonstrate the use of cutting planes to clarify hidden features of an object. CADD.06.02
  - c Create and edit construction planes through reference geometry.\* (G35) CADD.06.03
  - d Generate/modify geometric components on construction planes.\* CADD.06.04
  - e Create a 2-D drawing from a 3-D model.\*(G34) CADD.06.05
  - f Create a 3-D model from a 2-D drawing.\*(G35) CADD.06.06
- 7 Create assemblies and views in 3-D format. CADD.07
- a Create an assembly in 3-D geometry.\*(F31) CADD.07.01
  - b Create an exploded view of a 3-D assembly.\*(F32) CADD.07.02
- 8 Explain and Utilize the concepts of sketching and the sketching process used in preliminary design and development. CADD.08
- a Produce proportional two- and three-dimensional sketches and designs. CADD.08.01
  - b Use sketching techniques as they apply to a variety of objects. CADD.08.02
  - c Use freehand graphic communication skills to represent conceptual ideas, analysis, and design concepts. CADD.08.03
  - d Explain the purpose of sketching and how it applies to design. CADD.08.04
- 9 Identify various symbols to interpret and read technical drawings. CADD.09
- a Interpret basic views and dimensions in a working drawing.\*(D17) CADD.09.01
  - b Identify geometric tolerance symbols.\*(D18) CADD.09.02
  - c Interpret drawings, pictures, and symbols.\*(D19) CADD.09.03
- 10 Maintain a portfolio to document knowledge, skills, materials and experience in CADD. CADD.10
- a Gather educational and work highlights to include in portfolio. CADD.10.01
  - b Organize and provide a compact disc, web site and/or other digital media for use in demonstrating knowledge, skills, and experience. CADD.10.02
  - c Prepare and conduct effective portfolio oral presentation(s). CADD.10.03