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

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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

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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

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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