CT.ENG CAD Drafting/Engineering Graphics

Essential Discipline Goals

-Develop and apply the technical competency and related academic skills that allow for economic independence and career satisfaction.
-Acquire the essential learnings and values that foster continued education throughout life.
-Demonstrate the ability to communicate, solve problems, work individually and in teams, and apply information effectively.
-Develop technological literacy and the ability to adapt to future change.

Standards **Indicators**

CT.ENG.05 Communicate graphically through sketches of multi-view and pictorial drawings that meet industry standards.

- **CT.ENG.05.01** Read and apply the rules for sketching in relation to proportion, placement of the views, and drawing medium needed
- **CT.ENG.05.02** Select necessary views for the problem
- **CT.ENG.05.03** Use blocking technique for size, shape, and details
- **CT.ENG.05.04** Apply surface shading techniques where needed
- **CT.ENG.05.05** Identify the uses of sketches in industry
- **CT.ENG.05.06** Identify and describe the terms used in sketching

CT.ENG.10 Produce multi-view orthographic projections to industry standards.

- **CT.ENG.10.01** Define and apply the terms related to multi-view drawings
- **CT.ENG.10.02** Apply the rules for orthographic projection
- **CT.ENG.10.03** Review and analyze the working drawing problem and specifications
- **CT.ENG.10.04** Visualize and select the necessary views
- **CT.ENG.10.05** Identify the types of lines, lettering, and drawing medium needed
- **CT.ENG.10.06** Solve fractional, decimal, and metric equations as needed
- **CT.ENG.10.06** Use concepts related to units of measurement
- **CT.ENG.10.07** Analyze and identify the need for sectional and/or auxiliary views
- **CT.ENG.10.08** Define and apply the rules for sections and auxiliary views
- **CT.ENG.10.09** Visualize and draw geometric figures in two dimens
- **CT.ENG.10.10** Describe, compare and classify geometric figures
- **CT.ENG.10.11** Apply properties and relationships of circles to solve circle problems

CT.ENG.15 Produce development layouts of various shaped objects to industry standards.

- **CT.ENG.15.01** Define and apply the terms related to surface developments
- **CT.ENG.15.02** Identify the uses of surface developments in industry
- **CT.ENG.15.03** Visualize basic three dimensional geometric shapes in a two dimensional plane
- **CT.ENG.15.04** Cut out and construct models for checking accuracy
- **CT.ENG.15.05** Apply the rules to surface developments to produce stretchouts

CT.ENG.20 Identify and produce pictorial drawings to industry standards.

- **CT.ENG.20.01** Identify and apply the terms related to pictorial drawings
- **CT.ENG.20.02** Review the working drawing problem and specifications
- **CT.ENG.20.03** Determine the type of pictorial needed
- **CT.ENG.20.04** Calculate the correct projection plane angles
- **CT.ENG.20.05** Apply the standards for drawing pictorial drawings
- **CT.ENG.20.06** Apply properties and relationships of triangles to solve geometric shapes

CT.ENG. 25 Identify and draw technical illustrations to industry standards.

- **CT.ENG. 25.01** Identify and apply the terms related to technical illustrations
- **CT.ENG. 25.02** Review the working drawing problem and specifications

CT.ENG. 25.03 Determine the type of illustration needed
CT.ENG. 25.04 Apply the rules for technical illustration
CT.ENG. 25.05 Analyze the need for surface shading and identify the types
CT.ENG. 25.06 Use concepts related to units of measurement
CT.ENG. 25.07 Solve fractional, metric, and decimal equations as needed

CT.ENG.30 Produce an ink overlay drawing to industry standards.
CT.ENG.30.01 Identify and apply the terms related to ink production
CT.ENG.30.02 Analyze the drawing specifications
CT.ENG.30.03 Identify and apply the procedures for rapidograph equipment

CT.ENG.35 Reproduce drawings to industry standards
CT.ENG.35.01 Identify and apply terms used in the reproduction process
CT.ENG.35.02 Identify and apply the rules for reproducing drawings
CT.ENG.35.03 Identify and use the various machines used in the reproduction process

CT.ENG.40 Identify C.A.D. workstation hardware.
CT.ENG.40.01 Read and interpret system specifications
CT.ENG.40.02 Identify various I/O devices
CT.ENG.40.03 Install and configure various computer components

CT.ENG.45 Perform disk and file management using utility programs.
CT.ENG.45.01 Identify and use disk operating system commands
CT.ENG.45.02 Identify and use utility commands
CT.ENG.45.03 Identify and use commands for word processing

CT.ENG.50 Produce various types of drawings using C.A.D. application programs.
CT.ENG.50.01 Identify and apply commands needed for drawing
CT.ENG.50.02 Identify and apply commands needed for editing drawings
CT.ENG.50.03 Identify and use commands needed for hardcopy

CT.ENG.55 Produce machine part details to industry standard.
CT.ENG.55.01 Identify and apply the terms related to detailing
CT.ENG.55.02 Identify the different types of details
CT.ENG.55.03 Identify and describe the different manufacturing processes for machine parts
CT.ENG.55.04 Identify and apply the rules for drawing machine part details
CT.ENG.55.05 Use concepts related to units of measurement
CT.ENG.55.06 Apply properties and relationships of triangles and circles to solve geometric shapes

CT.ENG.60 Produce machine part assembly drawings to industry standards.
CT.ENG.60.01 Identify and apply the terms related to assembly drawings
CT.ENG.60.02 Identify and describe the different assembly processes
CT.ENG.60.03 Identify and apply the rules for drawing assembly drawings
CT.ENG.60.04 Use concepts related to units of measurement
CT.ENG.60.05 Apply properties and relationships of triangles and circles to solve geometric shapes

CT.ENG.65 Produce layout drawings to industry standards.
CT.ENG.65.01 Identify and describe the different layout drawings
CT.ENG.65.02 Identify and apply the rules for layout drawings
CT.ENG.65.03 Use concepts related to units of measurement

CT.ENG.70 Produce graphs and charts to industry standards.
CT.ENG.70.01 Organize data for graphic representation
CT.ENG.70.02 Identify the types of charts and graphs

CT.ENG.70.03 Select the proper type graph per specifications and data

CT.ENG.75 Produce a schematic drawing to industry standards.
- **CT.ENG.75.01** Identify and apply the rules for drawing schematics
- **CT.ENG.75.02** Identify and apply the symbols used for schematics
- **CT.ENG.75.03** Describe the processes in industry that need schematic representations

CT.ENG.80 Design and produce maps and profiles to industry standards.
- **CT.ENG.80.01** Identify and apply the rules for cartography
- **CT.ENG.80.02** Identify the components and use a transit
- **CT.ENG.80.03** Apply properties and relationships of triangles to solve geometric problems
- **CT.ENG.80.04** Identify and apply the symbols used for topography
- **CT.ENG.80.05** Use scientific calculator appropriately to solve problems
- **CT.ENG.80 06** Use trigonometric relations to solve right triangles
- **CT.ENG.80.07** Use law of sines and sosines to solve triangles