Computer Assisted Drafting
Course Number: 21107

Rationale Statement: People with careers in design and pre-construction create our future. They turn a concept into a set of plans whether it's a component, a system, or a building. Their plans guide other construction or manufacturing professionals as they continue the building process. Students use Computer Aided Drafting software used by a skilled draftsperson or engineers.

Suggested Grade Level: 10-12

Topics Covered:

- CAD Basic Operations
- Illustrate layers
- Create blocks and attributes
- 3D drawings
- Orthographic projections
- Drawing and Plotting drawings to scale
- Math and Reading skills

Core Technical Standards & Examples

Indicator #1 Study principles, standards, and applications of design	
Bloom's Taxonomy Level	**Standard and Examples**
Knowledge	**CAD1.1. Identify CAD skills and applications of technical design** Examples: • Describe benefits of design using CAD • Describe factors that should be included in selecting technical drafting software • Compare various technical drawings from assorted CAD software
Application	**CAD1.2. Apply CAD defaults and preferences to set up a drawing** Examples: • Modify the workspace for individual users • Organize files for easy folder navigation • Modify user specific toolbars. • Set up grids and coordinates for assigned projects
Analysis	**CAD1.3. Identify proper terminology and examine career possibilities** Examples:

	• Prepare a report about the area of study • Design a questionnaire to for an interview. • Write a biography about a historic person in the field.
Indicator #2 Apply computer skills to develop technical 2-D drawings	
Bloom's Taxonomy Level	**Standard and Examples**
Synthesis	**CAD2.1. Create multi-view and orthographic projections** Examples: • Design top, front, and right side views of an object • Integrate proper dimensioning techniques on a 2D drawing • Formulate the number of views needed to fully describe an object
Application	**CAD2.2. Illustrate layers with appropriate characteristics** Examples: • Apply layers to a map or plot plan • Classify blocks or symbols to independent layers • Complete drawing features using various layer colors and line types
Knowledge	. **CAD2.3. Define dimensioning styles and techniques on metric and imperial drawings** Examples: • Label measurements, notes, and symbols to orthographic views • Show dimensions on an isometric drawing • Show a drawing using metric or imperial units • Identify ANSI standards for dimensioning and notes
Synthesis	**CAD2.4. Create blocks and assign attributes to various projects** Examples: • Integrate various symbols used on an architectural or technical drawing • Compose a title block with assigned attributes • Rearrange and edit attributes of developed blocks
Application	**CAD2.5. Illustrate isometric and pictorial drawings**

	Examples: • Show renderings on a pictorial drawing • Complete an isometric from a multi-view drawing
Indicator #3 Apply computer skills to produce technical 3-D drawings	
Bloom's Taxonomy Level	**Standard and Examples**
Application	**CAD3.1. Illustrate 3-D drawings and create orthographic projections** Examples: • Complete a basic 3-D solid of various geometric shapes • Illustrate 2-D projections of a 3-D object • Apply poly-lines to develop 3-D solid
Indicator #4 Produce final technical plans through various printing techniques	
Bloom's Taxonomy Level	**Standard and Examples**
Synthesis	**CAD4.1. Create and plot drawings to scale** Examples: • Modify and plot drawings using all ANSI standard media • Formulate various line weights using pen assignments • Compose plans using metric, imperial, and architectural dimension styles • Create a 3-D solid model on a 3-D printer.