Technical Drafting
Course Number: 21106

Rationale Statement: People with careers in design and pre-construction create our future.. Their plans guide manufacturing professionals as they continue the building process. Students are introduced to tools and methods used by a skilled draftsperson and engineers.

Suggested Grade Level: 9-12

Topics Covered:

- Concepts of drafting
- Proper tools and safety
- Orthographic projections
- Geometric construction
- Sectional views
- Fasteners
- Simple CAD applications
- Math and Reading skills

Core Technical Standards & Examples

1. Examine basic drafting fundamentals and technical skills	
Bloom's Taxonomy Level	**Standard and Examples**
Knowledge	**TD1.1. Define basic drafting tools and techniques used on technical drawings** Examples: • Show proper lettering techniques on drawings • Define and use the alphabet of lines on various drawings • Identify line symbols recommended by ANSI • Show manual drafting techniques on ANSI standard paper.
Synthesis	**TD1.2. Integrate geometric construction for technical drafting** Examples: • Create the basic geometric shapes using manual drafting tools • Combine various drafting tools to define angles and directions
Knowledge	**TD1.3. 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
Application	**TD1.4. Demonstrate various drawing scales used in technical drafting** Examples: • Reduce a drawing by scaling down to fit on assigned paper size • Calculate a metric drawing into imperial dimensions • Convert a drawing with fractions into decimal equivalents
Analysis	**TD1.5. Identify proper terminology and examine career possibilities** Examples: • Prepare a report about the area of study • Design a questionnaire for an interview. • Write a biography about a historic person in the field.
2. Apply drawing techniques to produce various technical plans	
Bloom's Taxonomy Level	**Standard and Examples**
Synthesis	**TD2.1. 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	**TD2.2. Illustrate isometric and pictorial drawings** Examples: • Complete one and two point perspectives of a house • Show renderings on a pictorial drawing • Complete an isometric from a multi-view drawing
Synthesis	**TD2.3. Create sectional views and conventions** Examples: • Create ribs, webs, and fasteners with a through cutting plane. • Design the various views of a section using assigned cutting planes

	• Combine conventional breaks and symbols on a drawing
Application	**TD2.4. Demonstrate various threads and fasteners used in design.** Examples: • Apply the standard and metric thread classifications to various plans • Show detailed, schematic, and simplified thread representations • Classify common thread terms on a technical drawing.
Synthesis	**TD2.5. Integrate various drawings to create a detailed assembly.** Examples: • Create an assembly drawing and apply various ANSI standards • Compose a title block for drawings incorporating standard information • Formulate a standard bill of materials of a simple project.
3. Analyze and implement computer aided software in technical design	
Bloom's Taxonomy Level	**Standard and Examples**
Analysis	**TD3.1. Compare computer aided software used in technical design** Examples: • Analyze various types of CAD software • Explain benefits of design using CAD • Select a software to best fit the needs of design
Application	**TD3.2. Apply Cad software in technical design** Examples: • Show basic orthographic projections using CAD • Illustrate 3-D modeling of an object • Complete assembly drawings of multi-part projects