E. PRINT INTERPRETATION

E1. Interpret Notes and Dimensions to Determine Sizes, Materials, and Other Requirements

E1.1. Explain Basic Blueprint Terminology.

Performance Objective: Given a technical drawing, the student will be able to identify, correctly label, and give reasons for each basic element within the drawing.

BASIC DRAWING ELEMENTS AND TERMINOLOGY	
Title block	Working space
Scale	Views
Tolerances	Layout
General notes	Baseline
Revision block	Centerline
Material/parts list	Principle measurements
	Detail measurements
Lettering	Extension and dimension lines
	Dimensions and notes
	Arrowheads

E1.2. Identify The Types Of Dimensions.

Performance Objective: Given a technical drawing with at least seven different types of dimensioning, the student will be able to identify and label all of them.

Size dimensions	Machine (M)	Linear
Rectangular prism	Pattern (P)-nominal to 1/16″	Curves
Cylinders	Hole - diameters	Round-end
Location dimensions	Tapers	radii
Mating dimensions	Shaft centers	Threads
Reference dimensions	Chamfers	Keyways
	Knurls	Bends
	ID/OD	

E1.3. Identify General Note Symbols.

Performance Objective: Given a technical drawing, the student will be able to locate general notes and identify and label the symbols used with 100% accuracy.

E1.4. Locate Notes On A Print.

Performance Objective: Given a technical drawing, the student will be able to locate and identify five different local notes with 100% accuracy.

E1.5. Interpret Commonly Used Abbreviations And Terminology.

Performance Objective: Given a list of standard abbreviations, the student will be able to completely write the terms the abbreviation stands for and draw a small sketch to illustrate its application or terminology with 100% accuracy.

*A list of standard abbreviations can be found in **Appendix A**.*

E1.6. Determine Tolerances Associated With Dimensions On A Drawing.

Performance Objective: Given three different manufacturing processes or requirements, the student will be able to state what tolerance is associated with each process.

E1.7. List The Essential Components Found In The General Drawing Notes.

Performance Objective: Given a technical drawing, the student will be able to associate those essential components of a technical drawing described in the general drawing notes.

E2. Identify and Explain Basic Items in Detailed Drawings

E2.1. Identify Types Of Lines Within A Drawing.

Performance Objective: The student will be able to execute a drawing correctly using each of the following line types:

Visible/outlines	Dimension lines	Break lines
Hidden/invisible lines	Extension lines	Cutting or view indicator
Center lines	Phantom or datum lines	

E2.2. Identify Item Number Symbols. ⑤

Performance Objective: Given an assembly drawing, the student will be able to use number symbols to match part descriptions on the parts list with the detail of that part on the drawing with 100% accuracy.

E2.3. Identify General Note Symbols.

Performance Objective: Given a mechanical drawing, the student will be able to identify and interpret local note symbols with 100% accuracy.

E2.4. List The Essential Components Found In The Title Block.

Performance Objective: Given a pencil and lined paper, the student will be able to lay out a title block and identify and locate eight essential components in the block.

TITLE BLOCKS INFORMATION:	
1. Title - what is it?	8. Signatures
2. Name and address of manufacturer.	Draftsperson and date
3. Name and address of customer	Checker and date
4. Drawing number	9. Sheet ___ of ____
5. Scale	10. Contract number
6. Material specifications	11. Heat treatment (procedure?)
7. Working tolerances	

E2.5. Locate Bill Of Materials In A Drawing.

Performance Objective: Given a technical drawing, the student will be able to identify the bill of materials or parts list, and state the basic elements.

Part name	(Optional)
Part number or symbol	Pattern numbers
Quantity	Weight of parts
Material specified	Stock sizes of materials
Identify number in drawing ⑦	

E2.6. List The Essential Components Found In The Revision Block.

Performance Objective: The student will be able to list at least five essential components in a revision block.

Revision date	Revision number	Change authorization
Revision symbol	Change description	Change code

E3. Identify Basic Types of Drawings and List the Purpose of Each

E3.1. Identify Orthographic Views.

Performance Objective: Given a technical drawing, the student will be able to identify and label the basic orthographic projections with 100% accuracy.

E3.2. Identify Isometric Views.

Performance Objective: Given an array of sample drawings including perspective, orthographic, and auxiliary views, the student will be able to identify the drawings that provide isometric views with 100% accuracy.

E3.3. List The Steps In Making An Isometric Sketch.

Performance Objective: The student will be able to list the five basic steps in making an isometric sketch.

1. Establish breadth and depth 30° angles and using the gross dimensions of the object, draw a thin outline box that inscribes the complete object.
2. Insert dark line details of the top and bottom surfaces.
3. Insert dark line details of the front and back surfaces.
4. Insert dark line details of the side surfaces.
5. Erase unnecessary thin lines.

E3.4. Identify Position Of Views (Top, Front, Side And Auxiliary).

Performance Objective: Given drawing paper and an isometric drawing of an object, the student will be able to lay out the drawing showing the appropriate location of top, front, side, and auxiliary views within 1/4″ of the locations on the benchmark model.

E3.5. Visualize One Or More Views From A Given View.

Performance Objective: Given drawing paper and an isometric drawing of an object, the student will be able to sketch the top, front, and side views.

E4. Interpret Drawing Elements Regarding Layout, Plan, Production and Inspection

E4.1. Determine The Scale Of The View Or Section.

Performance Objective: Given a piece of drawing paper and an isometric view of an object with dimensions, the student will be able to determine the drawing scale appropriate for the paper size using standard layout guidelines.

E4.2. Verify Scale Against Engineer's Scale Rule To Determine Accuracy.

Performance Objective: Given a technical drawing and an engineer's scale rule, the student will be able to check a minimum of four different dimensions and verify the scale of the drawing with 100% accuracy.

E4.3. Check For Revisions.

Performance Objective: Given a technical drawing, the student will be able to state what revisions have been made to the drawing and when and who authorized them with 100% accuracy.