

MECHANICAL DRAWING

***Curriculum Standard One:* The student will understand, classify, and be familiar with historical events, from cave writings to computer aided drafting systems, as a development of graphic language.**

Performance Objective	Critical Attributes	Benchmarks/Assessment
1. The student will understand, classify, and be familiar with historical events, from cave writings to CAD systems, as a development of graphic language.	A. Can the student identify, from historical works, the stages of graphic language development?	<ul style="list-style-type: none">• The student will identify pictorials representing the stages of graphic language development.• The student will describe the development of graphic language through chapter review questions.

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Curriculum Standard Two: The student will understand different job opportunities and career paths available.		
Performance Objective	Critical Attributes	Benchmarks/Assessment
<p>1. The student will know the types of careers related to and utilizing drafting skills and knowledge.</p>	<p>A. Can the student identify specific careers and/or occupations which incorporate drafting skills?</p> <p>B. Can the student explain how daily activities and lessons relate to actual jobs?</p>	<ul style="list-style-type: none"> • Chapter exercises which relate to careers to drafting and technology. • Discussion with professionals on careers and job opportunities.
<p>2. The student will be able to select the courses necessary to complete a career path which incorporates MECHANICAL DRAWING.</p>	<p>A. Does the student know which courses to enroll in to prepare for a drafting-related career?</p>	<ul style="list-style-type: none"> • The student will develop charts and diagrams identifying a variety of drafting-related careers and the preparation required for those careers. • The student will identify the career paths available to students enrolled in MECHANICAL DRAWING.

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Curriculum Standard Three: The student will demonstrate proper tool use and care of equipment.

Performance Objective	Critical Attributes	Benchmarks/Assessment
<p>1. The student will understand various tools, equipment, media, and materials used in all fields of drafting and will understand methods and techniques for employing them appropriately.</p> <p>2. The student will correctly refer to, use, and care for drafting tools, equipment, media, and materials.</p>	<p>A. Can the student identify and discuss the correct methods and techniques of tools, equipment, media, and materials used in drafting?</p> <p>A. Can the student correctly refer to, use, and care for drafting tools, equipment, media, and materials?</p>	<ul style="list-style-type: none">• Given examples of the tools, equipment, media, and materials used in drafting, the student will identify and describe the correct methods and techniques in using each.• While completing class assignments and projects, the student will use and demonstrate the correct use and care of drafting tools, equipment, media, and materials.

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Curriculum Standard Four: The student will demonstrate the correct use of different measuring tools.

Performance Objective	Critical Attributes	Benchmarks/Assessment
<p>1. The student will understand measuring systems and how measuring instruments are used in drafting and related fields.</p> <p>2. The student will measure to the degree of accuracy required in a variety of particular drafting applications.</p>	<p>A. Can the student relate different drafting measuring tools to specific drafting tasks?</p> <ul style="list-style-type: none"> ➤ Drafting Arm ➤ Architecture-engineering Scales ➤ Venire Calipers <p>A. Can the student state the degree of accuracy required for drafting applications?</p>	<ul style="list-style-type: none"> • The student will demonstrate the correct use of drafting tools while completing drawings. • The student will perform accurate drawings to within 1/16 inch.

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Curriculum Standard Five: The student will demonstrate different lettering and font styles.		
Performance Objective	Critical Attributes	Benchmarks/Assessment
<p>1. The student will know the importance of quality lettering and the variety of lettering fonts used in the various disciplines.</p>	<p>A. Can the student discuss the importance of lettering?</p> <p>B. Can the student identify lettering fonts used in the various disciplines?</p>	<ul style="list-style-type: none"> • The student, through chapter review, will discuss and demonstrate the importance of lettering. • The student will identify lettering fonts used in various disciplines through chapter reviews and chapter tests.
<p>2. The student will apply appropriate lettering techniques and fonts when creating drawings.</p>	<p>A. Can the student demonstrate the appropriate lettering techniques and fonts when creating drawings?</p>	<ul style="list-style-type: none"> • The student will use appropriate lettering techniques and fonts on drawings.

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Curriculum Standard Six: The student will be able to sketch objects using a variety of techniques.

Performance Objective	Critical Attributes	Benchmarks/Assessment
<p>1. The student will understand the reason for applying various types of orthographic and pictorial drawings, such as axonometric, oblique, and perspective drawings.</p> <p>2. The student will produce well-proportioned and easily understood two and three-dimensional sketches.</p>	<p>A. Can the student identify various types of sketches?</p> <p>B. Does the student understand the importance of proportions in sketching?</p> <p>A. Can the student understand three-dimensional sketches and how they apply to architectural and mechanical drawing?</p>	<ul style="list-style-type: none"> Through handouts and chapter review, the student will sketch different types of orthographic, pictorial, and 3-D drawings, explaining the benefits and uses of each type.

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Curriculum Standard Seven: The student will demonstrate different orthographic projection drawings.

Performance Objective	Critical Attributes	Benchmarks/Assessment
<p>1. The student will understand, identify, and correctly use the alphabet of lines.</p>	<p>A. Can the student identify the alphabet of lines?</p> <p>B. Can the student correctly use the alphabet of lines?</p>	<ul style="list-style-type: none"> • Through testing, the student will identify the alphabet of lines. • With drawing, the student will demonstrate the use of the alphabet of lines.
<p>2. The student will develop an object graphically using appropriate projection techniques.</p>	<p>A. Can the student identify, describe, and demonstrate orthographic projections?</p>	<ul style="list-style-type: none"> • The student, through drawings, will demonstrate his/her knowledge of orthographic techniques.

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Curriculum Standard Eight: The student will demonstrate different dimensioning techniques.

Performance Objective	Critical Attributes	Benchmarks/Assessment
1. The student will understand and apply dimensioning practices to drawings using the current standards of dimensional and tolerancing for a variety of drafting applications.	A. Can the student understand basic dimensioning techniques: mechanical, architectural, and electrical? B. Does the student have a basic understanding of ANSI dimensioning?	<ul style="list-style-type: none">• The student will demonstrate proper dimensioning techniques through actual drawings. The student will produce eight mechanical, electrical, and architectural examples.

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<i>Curriculum Standard Nine: The student will understand different section drawings.</i>		
Performance Objective	Critical Attributes	Benchmarks/Assessment
<p>1. The student will understand section view applications and functions.</p>	<p>A. Can the student identify types of section views?</p> <p>B. Can the student explain projection and placement of section views?</p>	<ul style="list-style-type: none"> • Through chapter review and tests, the student will identify types of section views. • Through chapter reviews and drawings, the student will explain the projection and placement of section views.
<p>2. The student will incorporate section views and appropriate cutting planes to clarify hidden features or objects on drawings.</p>	<p>A. Can the student demonstrate proper uses of section views?</p>	<ul style="list-style-type: none"> • The student will complete at least one project demonstrating the proper use of section views.

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<i>Curriculum Standard Ten: The student will understand pictorial drawings.</i>		
Performance Objective	Critical Attributes	Benchmarks/Assessment
<ol style="list-style-type: none"> 1. The student will understand the structure, components, types, sequential construction methods, and applications of pictorial assemblies. 2. The student will draw objects accurately in pictorial format. 	<ol style="list-style-type: none"> A. Can the student demonstrate pictorial drawings, through multi-view drawings? 	<ul style="list-style-type: none"> • The student will demonstrate through multi-view drawings the need for pictorial views in mechanical and electrical drawings.

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<i>Curriculum Standard Eleven: The student will understand tolerance relationships.</i>		
Performance Objective	Critical Attributes	Benchmarks/Assessment
<p>1. The student will understand tolerance relationships between functional mating parts and will calculate and apply correct tolerancing conventions to drawings.</p>	<p>A. The student will demonstrate through architectural and mechanical drawings ANSI tolerances through dimensioning?</p>	<ul style="list-style-type: none"> • The student will produce working drawings, which include ANSI tolerances.

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<i>Curriculum Standard Twelve: The student will know when and how to use reprographics.</i>		
Performance Objective	Critical Attributes	Benchmarks/Assessment
1. The student will know the accepted methods and materials used in reprographics.	A. Can the student identify the methods and materials used in reprographics?	<ul style="list-style-type: none">• The student will use the appropriate materials and methods to reproduce original drawings.• The student will communicate in oral and written form the appropriate materials and methods to reproduce original drawings.

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<i>Curriculum Standard Thirteen: The student will complete an assembly drawing.</i>		
Performance Objective	Critical Attributes	Benchmarks/Assessment
<p>1. The student will understand, organize, and complete an assembly drawing, using information collected from detail drawings.</p>	<p>A. Can the student lay out and complete an assembly drawing?</p>	<ul style="list-style-type: none"> • The student will layout and draw an assembly drawing using detail drawings. • The student will demonstrate understanding of assembly drawings by accurately completing textbook exercises and a unit test.

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***Curriculum Standard Fourteen:* The student will be able to use primary and secondary auxiliary planes and revolutions.**

Performance Objective	Critical Attributes	Benchmarks/Assessment
<p>1. The student will understand how auxiliary views are projected and used to clarify a drawing. The student will use primary and, when applicable, secondary auxiliary planes and revolutions.</p>	<p>A. Can the student identify when, where, and which auxiliary views to use to clarify a drawing?</p>	<ul style="list-style-type: none"> • The student will properly use auxiliary views in drawings. • The student will show, through testing, knowledge of the correct use of auxiliary views.