

**EL DORADO UNION HIGH SCHOOL DISTRICT  
Educational Services**

**Course of Study Information Page**

Course Title: Shop Fundamentals - Drafting (#501)	
Rationale: The language of industry is expressed in the form of sketches, notes and drawings. This course gives students a fundamental understanding of sketching and drawing to be able to communicate with both consumer and industrial workers.	
Course Description: In this course, the student will learn how to read white prints, sketch proposals and complete formal drawings on the board. Where possible, students will be introduced to computer aided drafting.	
How Does This Course Align With or Meet State and District Content Standards? Each unit is aligned with State and National Standards.	
Length of Course:	1 year (part of a sequence of up to three - 12 week courses)
Grade Level:	Grade 9-10
Credit: 5 units per semester <input type="checkbox"/> Meets graduation requirements <input type="checkbox"/> Request for UC "a-f" requirements <input type="checkbox"/> College Prep <input checked="" type="checkbox"/> Elective <input checked="" type="checkbox"/> Vocational	
Prerequisites:	None
Department(s):	Trades & Industrial Education
District Sites:	EDHS, ORHS, PHS, UMHS
Board of Trustees Adoption Date:	February 13, 2001
Textbook(s)/Instructional Materials:	Miscellaneous supplementary materials
Date Adopted by the Board of Trustees:	May 8, 2001

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**UNIT #1:** Use of Drafting Equipment

**GOAL:** To teach each student how to use and care for basic drafting equipment.

**“Big Idea” (Theme)**

1. Use the board, drafting machine, parallel bar and triangles correctly.
2. Use pencils (wood or mechanical) properly and understand the system of lead hardness to establish line width.
3. Be able to draw circles and arcs using both a template and/or a compass.

**State/National Standards**

Standard 3: Care and Use of Tools and Equipment

**Give examples of student work that demonstrates mastery of this standard**

1. Student will complete a number of drawings that show mastery of the use of equipment.
2. Observation of student practices in the lab.

**Identify best practices used to teach standard**

1. Demonstration by teacher.
2. Lecture.
3. Hands-on testing.

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UNIT #2:      White Print Reading

<p><b>“Big Idea” (Theme)</b></p> <p>Each student will learn how to study and read a replicated drawing, looking for what object is represented, line weights and types and other information necessary to be able to construct the object.</p>
<p><b>State/National Standards</b></p> <p>Standard 2:    Drafting Careers</p> <p>Standard 1:    History of Drafting</p>
<p><b>Give examples of student work that demonstrates mastery of this standard</b></p> <p>1.    Complete a study guide that takes the student step by step through the process of reading a white print drawing.</p>
<p><b>Identify best practices used to teach standard</b></p> <p>1.    Completion of study guide.</p>

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UNIT #3: Sketching

**“Big Idea” (Theme)**

1. Each student will learn the basic steps in producing a variety of different types of freehand technical sketches.
2. Able to express one’s self with a sketch of an object in either a pictorial or orthographic projection view.

**State/National Standards**

Standard 6: Sketching

Standard 7: Orthographic Drawing

Standard 29: Technical Illustration

**Give examples of student work that demonstrates mastery of this standard**

1. Completes practice sheet of straight lines, arcs and circles.
2. Completes assigned sketches, using proper style of sketch to solve stated problems.

**Identify best practices used to teach standard**

1. Modeling by teacher.
2. Demonstration of technique by instructor.
3. Hands on problems.

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**UNIT #4:** 2 and 3 View Drawings (Orthographic Projection)

**“Big Idea” (Theme)**

1. Be able to view a pictorial drawing with dimensions and draw the necessary 2 or 3 view drawing showing orthographic projection lines.
2. Use and identify the correct lines and surfaces, representing an object.
3. Use dimensions and notes to describe details of construction.

**State/National Standards**

- Standard 4: Drafting Measurement
- Standard 7: Orthographic Drawing
- Standard 8: Dimensioning Practices

**Give examples of student work that demonstrates mastery of this standard**

1. Complete drawings converting pictorials to 2 and 3 views or 2 and 3 view drawings to pictorial drawings.
2. Complete drawings that show skill in the use of line weights and alignment between views using Orthographic projection.
3. Apply dimensions and notes to assigned drawings.

**Identify best practices used to teach standard**

1. Demonstrations by the teacher.
2. Posted examples of outstanding student's work.

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**UNIT #5:** Pictorial Drawings

<p><b>“Big Idea” (Theme)</b></p> <p>Each student will learn how to sketch or draw objects using pictorial views as a means of expression.</p>
<p><b>State/National Standards</b></p> <p>Standard 10: Pictorial Drawings</p>
<p><b>Give examples of student work that demonstrates mastery of this standard</b></p> <ol style="list-style-type: none"><li>1. Sketch or draw an isometric or other pictorial drawing from a two or three view drawing or sketch.</li></ol>
<p><b>Identify best practices used to teach standard</b></p> <ol style="list-style-type: none"><li>1. Demonstrations by instructor.</li><li>2. Posted examples of outstanding student’s work.</li></ol>

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**UNIT #6:** Surface Developments

**“Big Idea” (Theme)**

1. Produce a stretch out drawing of a number of products that could be made out of sheet metal.
2. The student will learn the procedure to layout and draw single piece sheet metal patterns.

**State/National Standards**

Standard 33: Sheet metal.

Standard 16: Three-dimensional Geometry

**Give examples of student work that demonstrates mastery of this standard**

1. Develop a stretch out drawing for the following objects: Box, Cone, Pyramid, Two piece “EII” and intersection of two pipes.
2. Develop a cardboard model of each surface development.

**Identify best practices used to teach standard**

1. Demonstrations by instructor.
2. Posted examples of outstanding student’s work.



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**UNIT #7:** Computer Aided Drafting

**“Big Idea” (Theme)**

The student will learn the basic commands of computer aided drafting (CAD) which are:

- Line, Arc and Circle
- Trim, Extend and Erase
- A system of layering to establish line color, weight and types
- A system of basic dimensions and notes
- Set up of a new drawing using a template
- Use of Cut, Copy and Paste
- Basic plotting to a paper copy

**State/National Standards**

Standard 14: Computer Aided Drafting / Design and Operations

**Give examples of student work that demonstrates mastery of this standard**

Develop a number of drawings that require the student to use all the basic commands of Auto CAD or other computer software.

**Identify best practices used to teach standard**

1. Lecture
2. Teacher-generated examples (hand-outs).
3. Student worksheets
4. Posted examples of outstanding student's work.