CHINO VALLEY UNIFIED SCHOOL DISTRICT
INSTRUCTIONAL GUIDE

Introduction to Drafting

Course Number   3125
Department   Electives
Length of Course   12-18 Weeks
Grade Level   7-8
Board Approved   September 2, 2004

Description of Course: Students will gain valuable experience and follow a detailed overview of the present world of drafting.   Introduction to Drafting combines the skills of drafting lines, symbols, form, finish, and builds student competency with the materials required to complete their drawings.   Students will develop skills in drafting through hands-on experiences that emphasize problem solving and critical thinking. This course is aligned to the State of California Industrial and Technology Education Frameworks and Model Curriculum Standards, and Career Preparation Standards (CDE).

Rationale for Course: Introduction to Drafting is for the beginning student who wishes to develop the skills and competencies of mechanical drafting. This course reinforces the academic core curriculum in math, language arts, and technology and builds a bridge to career success.

Standard 1: Goal Setting

    1.1   Objective: Students will participate in goal setting activities that will enable them to achieve their educational goals in Introduction to Drafting.

        1.1.1 Performance Indicator: Students will understand the basic course requirements, methods of student evaluation, course objectives, class procedures, and content.

        1.1.2 Performance Indicator: Students will develop a thorough knowledge of skills and attitudes concerning class rules and school emergency rules.

        1.1.3 Performance Indicator: Students will understand that everyone possesses a full range of aptitudes, skills, and emotional expressions.

        1.1.4 Performance Indicator: Students will demonstrate the safe use of classroom tools, equipment, and materials.

Standard 2:   Students will understand the concepts of beginning drafting that include measurement, lettering, sketching, and dimensioning practices.

    2.1   Objective: Students will learn skills for lettering.

        2.1.1 Performance Indicator: Students will demonstrate single stroke lettering.

        2.1.2 Performance Indicator: Students will demonstrate accurate guide lines.

2.1.3 Performance Indicator: Students will demonstrate correct spacing and height.

2.1.4 Performance Indicator: Students will measure accurately.

2.1.5 Performance Indicator: Students will apply appropriate lettering techniques and fonts when creating drawings.

2.1.6 Performance Indicator: Students will become skilled in using templates.

2.1.7 Performance Indicator: Students will use conventional drawing instruments or computer-aided drawing systems to produce drawings. (Correlated with availability and budget)

2.2 Objective: Students will learn skills for sketching.

2.2.1 Performance Indicator: Students will demonstrate freehand lines and shapes.

2.2.2 Performance Indicator: Students will demonstrate circles, arcs, and angles.

2.2.3 Performance Indicator: Students will properly sketch a drawing.

2.2.4 Performance Indicator: Students will measure accurately.

2.2.5 Performance Indicator: Students will produce well-proportioned and easily understood two and three-dimensional sketches..

2.2.6 Performance Indicator: Students will apply dimensioning practices for drawings including proportions, enlargements, and reduction.

2.2.7 Performance Indicator: Students will demonstrate the graph method.

2.2.8 Performance Indicator: Students will be introduced to multiview sketches.

Standard 3: Students will learn to select and use the appropriate tools for drafting.

3.1 Objective: Students will identify the correct tools and accurately develop the drawing using appropriate techniques, tools, and equipment.

3.1.1 Students will care for drafting equipment properly.

3.1.2 Students will identify pieces of drafting equipment by their proper names and describe what each is used for including: the drawing board, architectural scale, T-Square, triangles, compasses, circle, template, protractors, dividers, erasing shields, erasers, cleaning bag, and optional technical equipment (correlated with availability and budget).

3.1.3 Students will select the proper drafting equipment for the job.

3.1.4 Students will prepare drafting equipment for drawing.

Standard 4: Students will learn to measure distances correctly.

4.1 Objective: Students will use correct drafting conventions and apply appropriate dimensioning standards to their respective drawings.

4.1.1 Performance Indicator: Students will develop working drawings that show in detail the accurate size and shape of the objects.

       4.1.2   Performance Indicator: Students will measure distances correctly with an architect's, mechanical engineer's, civil engineer's, or metric scale.

       4.1.3   Performance Indicator: Students will construct knowledge of fractions and decimals in relation to their drawings.

Standard 5: Students will learn to read, interpret, and create drawings using universally accepted drawing conventions and geometric construction.

   5.1   Objective: Students will learn and become skillful in the construction of geometric shapes and forms.

       5.1.1   Performance Indicator: Students will identify the different kinds of points and lines.

       5.1.2   Performance Indicator: Students will identify and bisect angles.

       5.1.3   Performance Indicator: Students will identify and draw the different types of triangles.

       5.1.4   Performance Indicator: Students will identify and draw hexagons and pentagons.

       5.1.5   Performance Indicator: Students will identify and draw tangents and arcs.

       5.1.6   Performance Indicator: Students will name and draw the parts of circles.

       5.1.7   Performance Indicator: Students will draw an ellipse.

       5.1.8   Performance Indicator: Students will investigate geometric relationships by enlarging and reducing various geometric forms.

Standard 6: Students will learn the method of orthographic drawing.

   6.1   Objective: Students will understand, identify, and correctly use the alphabet of lines, and will develop an object graphically using appropriate projection techniques.

       6.1.1   Performance Indicator: Students will make a multiview drawing.

       6.1.2   Performance Indicator: Students will select views that will best show the objects they are drawing.

       6.1.3   Performance Indicator: Students will project information from one view to an adjacent view.

       6.1.4   Performance Indicator: Students will use the alphabet of lines in making a multiview drawing.

       6.1.5   Performance Indicator: Students will understand the relationship of views.

       6.1.6   Performance Indicator: Students will understand how points, lines, and planes are expressed in the different views

       6.1.7   Performance Indicator: Students will understand the uses of multiview drawings.

Standard 7: Students will apply basic dimension techniques.

7.1 Objective: Students will be able to place dimensions properly on drawings and add notes and other specific information.

    7.1.1 Performance Indicator: Students will define and explain what dimensioning means.

    7.1.2 Performance Indicator: Students will place dimensions properly on their drawings.

    7.1.3 Performance Indicator: Students will draw extension lines correctly.

    7.1.4 Performance Indicator: Students will draw leaders properly.

    7.1.5 Performance Indicator: Students will express and letter notes on drawings properly.

    7.1.6 Performance Indicator: Students will add finish marks on drawings correctly.

    7.1.7 Performance Indicator: Students will define what tolerance means and explain when tolerance must be used.

    7.1.8 Performance Indicator: Students will describe and explain the use of finish marks and the datum method.

    7.1.9 Performance Indicator: Students will explain and show how to place dimensions correctly on drawings.

    7.1.10 Performance Indicator: Students will place dimensions properly on their drawings.

Standard 8: Students will understand basic concepts of architectural drafting.

8.1 Objective: Students will develop architectural working drawings using current industry standards, and complete structural drawings.

    8.1.1 Performance Indicator: Students will sketch bedroom floor plans.

    8.1.2 Performance Indicator: Students will design and construct residential floor plans to architectural scale.

    8.1.3 Performance Indicator: Students will construct foundation plans.

    8.1.4 Performance Indicator: Students will design typical wood frame wall section drawings.

    8.1.5 Performance Indicator: Students will design residential electrical and plumbing plans.

Standard 9: Students will learn the importance of section view applications.

9.1 Objective: Students will understand that section views clarify hidden features on sections.

    9.1.1 Performance Indicator: Students will use sectional symbols.

    9.1.2 Performance Indicator: Students will draw types of sections.