COMPUTER AIDED DRAFTING
MCKINLEYVILLE HIGH SCHOOL

1. **COURSE TITLE:** **Computer-Aided Drafting**

2. **CBEDS TITLE:** **Computer-Aided Drafting/Design**

3. **CBEDS NUMBER:** **5705**

4. **JOB TITLES/DOT CODES:**
   Drafter Apprentice - 017.281-014
   Drafter, Architectural - 001.261-010
   Drafter, Commercial - 017.261-026
   Drafter, Landscape - 001.261-014
   Drafter, Mechanical - 007.281-010
   Drafter, Structural - 005.281-014

5. **COURSE DESCRIPTION:** **The computer-aided drafting course at McKinleyville High School is designed to enable students to communicate effectively in a drafting or industrial environment, with instruction and use of new terminologies used in the world of work. The course allows the development of advanced drafting skills and knowledge in a useful or saleable skill while providing an understanding and experience of the American work ethic. Additionally, students will develop the ability to search out or research problems encountered in architectural drafting.**

6. **HOURS: 160 hours**

7. **PREREQUISITES: 16 years of age and older.**

8. **DATE: November, 2002.**

9. **COURSE OUTLINE**

   A. ESSENTIAL EMPLOYABILITY SKILLS:
   - **a. Job Search Skills**
   - **b. Resume Writing**
   - **c. Interviewing**

d. Job Maintenance - how to keep your job

B. CONTENT AREA SKILLS :

1. Unit 1 - Introduction

A. Purpose

1. Orient the student in the content, attendance policies, grading policies, teacher expectations and purpose of course.

2. A comprehensive review of safety procedures and practices.

B. Activities

1. Presentation and discussions

1.1 Introduction

1.2 Grading policies

1.3 Class content and activities

1.4 Student responsibilities

a. To oneself and others

b. Cleanup duties

c. Tools and equipment

d. Payment of materials

1.1 Attendance policies

2. Safety review

2.1 Use and care of tools and equipment

2.2 Safe activities in the confines of the drafting room

C. Evaluation

1. Safety tests

2. Continuous observation by instructor

2. Unit 2 - Review of Drafting

A. Purpose

1. Reorient student to drafting procedures

2. Refresh memory on recall of previous drafting methods

B. Activities

1. Lecture and demonstration

1.1 Lettering

1.2 Lines

1.3 Dimensions

2. Assignment to two drafting problems as a refresher

2.1 Multi-view project

2.2 Sketching

2.3 Sections

2.4 Auxiliary views

2.5 Pictorials

2.5a isometric projection

2.5b oblique projection

3. Evaluation

3.1 Test and quizzes
3.2 Evaluation of drawings completed

3. Unit 3 - Threads, Fasteners & Springs
   A. Purpose
      1. Familiarize student with the concept of screw threads and their history
      2. The definition of terms and screw thread nomenclature

   B. Activities
      Lecture and demonstration - filmstrip on threads

      1. Screw thread forms
         1.1 American National thread
         1.2 Unified thread
         1.3 Square thread
         1.4 Acme thread
         1.5 Whitworth thread
         1.6 Standard worm thread
         1.7 Knuckle thread
         1.8 Buttress thread

      2. Thread symbols
         2.1 Schematic
         2.2 Simplified
         2.3 Detailed

      3. American National standard bolts and nuts
      4. Locknuts and locking devices
      5. Cap screws and machine screws
      6. Set screws
      7. Springs
         7.1 compression springs
         7.2 extension springs

   C. Evaluation
      1. Test or quizzes
      2. Evaluation of drawing exercises

4. Unit 4 - Intersection and Development
   A. Purpose
      1. Familiarize students in the use of principles involved in intersection of planes and solids
      2. Practical application of developments occurring in sheet metal work and pattern making

   B. Activities
      Lecture, demonstration and filmstrip
      1. Developments
         1.1 Prisms
         1.2 Cylinders

1.3 Pyramids
1.4 Cones

2. Transition Pieces
2.1 Transition pieces connecting two rectangular pipes
2.2 Transition pieces connecting a round to a square pipe

C. Evaluation
1. Evaluation of exercises completed
2. Test

5. Unit 5 - Architectural Drawing
A. Purpose
1. Present the differences between architectural lettering, machine drafting, lettering
2. Present the student with an understanding of the different scales used in the architectural drafting
3. Present the student with a better understanding in the use of detail and section drawing as used in architectural drawing

B. Activities
Lecture and demonstration
1. Foundations
2. Types of construction
2.1 solid sill
2.2 platform
2.3 balloon
3. Basic floor
3.1 floor plans
3.2 electrical
3.3 plumbing
3.4 details
4. Types of elevation
4.1 front and rear
4.2 left and right
4.3 door and window
4.4 detail on sections

C. Evaluation
1. Completion of exercises to instructor's satisfaction
2. Tests

6. Unit 6 - Copy Architectural Drafting
A. Purpose
Copy architectural drafting
1. To familiarize student with sizes of room walls, interior and exterior
2. To familiarize with different scales used on sections, details of walls

B. Activities
1. Lecture and demonstration

1.1 Room planning
1.2 Floor plan-design
1.3 Complete floor plans
1.4 Floor plan dimensioning

2. Elevation drawing
2.1 Design
2.2 Elevation projection
2.3 Elevation symbols
2.4 Elevation dimensioning

3. Foundation Plans
3.1 Foundation members
3.2 Foundation types
3.3 Construction methods
3.4 Fireplaces

C. Evaluation
1. Completion of exercises to instructor's satisfaction
2. Tests

7. Unit 7 - Framing Plans

A. Purpose
1. Acquaint students with early framing methods
2. Acquaint students with current framing methods

B. Activities
1. Lecture and demonstration
1.1 Types of framing
1.2 Floor framing plans
1.3 Exterior wall framing plans
1.4 Interior wall framing plans
1.5 Stud layout
1.6 Roof framing plans
1.7 Roof covering materials

2. Drawing of each of the above headings

C. Evaluation
1. Completion of exercises
2. Tests

8. COMPUTER-AIDED DRAFTING (CAD)

A. Purpose - to allow students to demonstrate competency in the following areas:
1. Proper use and care of computer hardware and software systems
2. Manipulating coordinate systems (absolute, relative, polar.)
3. Entity creation using Autocad drawing commands
4. Editing entities utilizing Autocad editing commands