

MISSION TRAILS REGIONAL OCCUPATION PROGRAM

1. COURSE TITLE:           **Industrial Drafting**
  
2. CBEDS TITLE:           **Civil/Structural Drafting**
  
3. CBEDS NUMBER:       **5704**
  
4. JOB TITLES:           **Drafter, CAD drafter, Designer, Engineer Tech,  
Design Engineer, Contractor,**
  
5. COURSE DESCRIPTION: **This course is designed to instruct students in the identification of drafting terminology and symbols. This class includes the use of typical drafting tools, computers, and AutoCAD Software to produce Industrial drawings...Structural, Mechanical, and Electrical drawing systems will be used in class. To help students understand the terminology and process necessary to complete this type of Drafting Technology.**
  
6. HOURS:                 **70**
  
7. PREREQUISITES:       **NONE**
  
8. REVISION DATE:       **August 14, 2005**

**COURSE OUTLINE:**

**a. CONTENT AREA SKILLS:**

- i. EXPECTED STUDENT OUTCOMES**
- ii. HOURS OF INSTRUCTION**

**COURSE OUTLINE**

CONTENT AREA SKILLS	EXPECTED STUDENT OUTCOMES	HOURS		
		CL = Classroom CC = Comm. Class. CP = Co-op Ed.	CL	CC
<b>Instruction will include:</b>	<b>Student will be able to:</b>			
1. Introduction to Drafting	1. Identify terms and symbols typical in drafting technology. Symbols for materials and operations will be explained and used in many drawings.	2		
2. Technical Sketching	2. Freehand Technical Sketching is taught as a necessary engineering tool for communication between designers and Engineers.	8		
3. Introduction of Drafting Equipment.	3. Typical Drafting Equipment will be demonstrated and designed. The T-square, lettering guide, triangles, compasses, the drafting machine and the computer will be used on a daily basis.	6		
4. Measurements 1/16 <sup>th</sup> of an inch	4. Using the Architects scale and the 18 inch plastic drafting machine rule – students will learn the systems of measurement.	6		
5. Block Lettering	5. Students will complete two 12x18 lettering plates using Caps and small lettering.	8		

6. Pattern Drafting	6. Pattern drafting drawings will drawn and students will determine centers and dimensions according to the drawing.	8		
7. Spatial Drafting and pictorial views	7. Drawing assignments for 3 view Spatial drawings with dimensions And visualizing those drawings as a pictorial drawing will be done in class.	8		
8. Intro to CAD drafting	8. Using AutoCAD 2002 – students will perform the same drafting techniques in pattern drafting on the computer. Finding line-types, line-styles, dimensioning properly to achieve a CAD drawing.	8		
9. Intro to Architectural drafting	9. Using the Architects scale ¼ inch Students will produce a typical floor plan and calculate square footage.	8		
10. Electrical Drafting	10. Electrical symbols and wiring diagrams will be explained to help students produce a series if electrical schematics	4		
11. Structural model making	11. In groups students will build a straw tower able to hold up a tennis ball with 500 straws----structural mechanical diagonal strength is the standard.	4		
		<b>HOUR</b>	<b>70</b>	<b>0</b>
		<b>TOTAL HOURS</b>	<b>70</b>	<b>0</b>

9 COURSE OUTLINE:

b) CAREER PERFORMANCE STANDARDS

i) EXPECTED STUDENT OUTCOMES

ii) HOURS OF INSTRUCTION

COURSE OUTLINE

CAREER PERFORMANCE STANDARDS	EXPECTED STUDENT OUTCOMES	HOURS
Instruction will include:	Student will be able to:	
<p>1. Personal Skills</p> <ul style="list-style-type: none"> <li>▪ <b>Classroom policies &amp; procedures</b></li> <li>▪ <b>Ethics</b> <ul style="list-style-type: none"> <li>→ Work</li> <li>→ Business</li> </ul> </li> <li>▪ <b>Sexual harassment laws</b></li> <li>▪ <b>Personal skills, including positive attitude, self-confident, honesty, perseverance &amp; self-discipline</b></li> <li>▪ <b>Professional appearance</b></li> <li>▪ <b>Time management</b></li> <li>▪ <b>Lifelong learning</b></li> </ul>	<p>1. Understand how personal skill development, including positive attitude, honesty, self-confidence, time management, &amp; other positive traits affect employability.</p> <ul style="list-style-type: none"> <li>▪ <b>Demonstrate and understand classroom policies &amp; procedures</b></li> <li>▪ <b>Define work and business ethics &amp; demonstrate the importance of ethical standards &amp; social responsibilities in the business environment.</b></li> <li>▪ <b>Discuss the laws applicable to sexual harassment &amp; discuss tactics for handling harassment situations.</b></li> <li>▪ <b>Demonstrate personal skills in class and/or business environment:</b> <ul style="list-style-type: none"> <li>→ Positive attitude</li> <li>→ Self-confidence</li> <li>→ Honesty</li> <li>→ Perseverance</li> <li>→ Self-discipline</li> </ul> </li> <li>▪ <b>Demonstrate and model personal hygiene and acceptable professional attire</b></li> <li>▪ <b>Prioritize tasks and meet deadlines</b></li> <li>▪ <b>Explain the importance of lifelong learning</b></li> </ul>	<p>Integrated in content area skills</p>

<p><b>2. Interpersonal Skills</b></p> <ul style="list-style-type: none"> <li>▪ <b>Group dynamics</b></li> <li>▪ <b>Conflict resolution and negotiation</b></li> <li>▪ <b>Team work</b></li> <li>▪ <b>Etiquette across gender and cultural groups</b></li> </ul>	<p><b>2. Understand principles of effective interpersonal skills, including group dynamics, conflict resolution, and negotiation.</b></p> <ul style="list-style-type: none"> <li>▪ <b>Identify and explain the key concepts of group dynamics</b></li> <li>▪ <b>Discuss and demonstrate the dynamics of conflict resolution and negotiation, and their importance within the business environment</b></li> <li>▪ <b>Demonstrate effective teamwork, share responsibilities, accept supervision and assume leadership roles</b></li> <li>▪ <b>Demonstrate cooperative working relationships and proper etiquette across gender and cultural groups</b></li> </ul>	<p>Integrated in content area skills</p>
<p><b>3. Thinking and Problem-Solving Skills</b></p> <ul style="list-style-type: none"> <li>▪ <b>Critical and creative thinking skills</b></li> <li>▪ <b>Logical reasoning and problem-solving skills</b></li> <li>▪ <b>Numerical estimation, measurement, and calculation</b></li> <li>▪ <b>Identify, locate, and organize needed information and propose, evaluate, and select alternative solutions</b></li> </ul>	<p><b>3. Understand the importance of critical thinking and problem-solving skills in the workplace.</b></p> <ul style="list-style-type: none"> <li>▪ <b>Apply critical and creative thinking skills in a work environment and implement a plan of improvement as needed</b></li> <li>▪ <b>Demonstrate logical reasoning and problem solving skills in a work environment</b></li> <li>▪ <b>Apply numerical estimation, measurement and calculation skills to business applications including the following:</b> <ul style="list-style-type: none"> <li>→ <b>Whole number math</b></li> <li>→ <b>Decimals &amp; fractions</b></li> <li>→ <b>Counting &amp; monetary functions</b></li> <li>→ <b>Use of tables &amp; graphs</b></li> </ul> </li> <li>▪ <b>Recognize problem situations; identify, locate and organize needed information, and propose, evaluate and select from alternate solutions</b></li> </ul>	<p>Integrated in content area skills</p>

<p><b>4. Communication Skills</b></p> <ul style="list-style-type: none"> <li>▪ <b>Written communications</b></li> <li>▪ <b>Verbal and Nonverbal communications</b></li> <li>▪ <b>Active and effective listening</b></li> <li>▪ <b>Proper etiquette in business communications</b></li> <li>▪ <b>Writing and editing skills</b></li> <li>▪ <b>Use of reference material and handbooks</b></li> <li>▪ <b>Oral presentations</b></li> </ul>	<p><b>4. Understand principles of effective communication.</b></p> <ul style="list-style-type: none"> <li>▪ <b>Read and implement written instructions, technical manuals, written communication, and reference books</b></li> <li>▪ <b>Present a positive image of verbal and nonverbal communication through use of appropriate methods</b></li> <li>▪ <b>Demonstrate active and effective listening skills through verbal, nonverbal and written feedback</b></li> <li>▪ <b>Demonstrate proper etiquette in business communications, including an awareness of requisite for international communications (languages, customs, and time zones)</b></li> <li>▪ <b>Demonstrate the following writing and editing skills:</b> <ul style="list-style-type: none"> <li>→ <b>Use correct grammar, punctuation, capitalization, vocabulary and spelling</b></li> <li>→ <b>Write, proofread and edit</b></li> <li>→ <b>Select and use appropriate forms of communication</b></li> </ul> </li> <li>▪ <b>Exhibit a proficiency in the use of reference materials such as dictionary, thesaurus, telephone directory, almanac, zip code directory, and office handbooks</b></li> </ul>	<p>Integrated in content area skills</p>
<p><b>5. Occupational Safety</b></p> <ul style="list-style-type: none"> <li>▪ <b>Good safety practices</b></li> </ul>	<p><b>5. Understand occupational safety issues, including avoidance of physical hazards</b></p> <ul style="list-style-type: none"> <li>▪ <b>Model and implement good safety practices including:</b> <ul style="list-style-type: none"> <li>→ <b>Avoidance and reporting of physical hazards in the work environment</b></li> <li>→ <b>Safe operation of equipment</b></li> <li>→ <b>Proper handling of hazardous materials</b></li> </ul> </li> </ul>	<p>Integrated in content area skills</p>

<p><b>6. Employment Literacy</b></p> <ul style="list-style-type: none"> <li>▪ <b>Expand awareness of career opportunities</b></li> <li>▪ <b>Set employment goals and objectives</b></li> <li>▪ <b>Aptitudes, personal characteristics and interests</b></li> <li>▪ <b>Develop portfolio to C-TAP standards</b></li> <li>▪ <b>Develop interviewing techniques</b></li> </ul>	<p><b>6. Understand career paths and strategies for obtaining employment.</b></p> <ul style="list-style-type: none"> <li>▪ <b>Explore career opportunities and develop a career plan</b></li> <li>▪ <b>Identify steps for setting goals and writing personal goals and objectives</b></li> <li>▪ <b>Examine aptitudes related to career options; relate personal characteristics and interests to educational and occupational opportunities</b></li> <li>▪ <b>Develop a portfolio to include the following:</b> <ul style="list-style-type: none"> <li>→ <b>Letter of Introduction</b></li> <li>→ <b>Cover letter</b></li> <li>→ <b>Resume</b></li> <li>→ <b>Thank you letter</b></li> <li>→ <b>Job application</b></li> <li>→ <b>Licenses, Certificates and Awards</b></li> <li>→ <b>Transcripts</b></li> <li>→ <b>Letters of Recommendation</b></li> <li>→ <b>Work Samples</b></li> </ul> </li> </ul>	<p>Integrated in content area skills</p>
<p><b>7. Technology Literacy</b></p> <ul style="list-style-type: none"> <li>▪ <b>Apply Industry specific technology</b></li> <li>▪ <b>Use Industry specific software</b></li> <li>▪ <b>Demonstrate Keyboarding</b></li> <li>▪ <b>Accessing information</b></li> <li>▪ <b>Lifelong enhancement of technology skills</b></li> </ul>	<p><b>7. Understand and adapt to changing technology.</b></p> <ul style="list-style-type: none"> <li>▪ <b>Identify and demonstrate use of appropriate technology</b></li> <li>▪ <b>Identify and use industry specific software</b></li> <li>▪ <b>Demonstrate proficiency in alphanumeric keyboarding</b></li> <li>▪ <b>Input and retrieve information</b></li> <li>▪ <b>Understand the importance of lifelong learning in adapting to changing technology</b></li> </ul>	<p>Integrated in content area skills</p>

**10. ADDITIONAL RECOMMENDED / OPTIONAL ITEMS**

- a) **ARTICULATION:** Hartnell Concurrent Drafting 50 – 3 units College Elective
  
- b) **VOCATIONAL CREDIT:** 5 Units /Elective
  
- c) **ACADEMIC CREDIT:** Job Shadowing - Individual
  
- d) **INSTRUCTIONAL STRATEGIES:** Mostly Residential Architectural Drafting
  
- e) **INSTRUCTIONAL MATERIALS:** AutoCAD Software
  
- f) **CERTIFICATES:** CAD Certificate