

COURSE OUTLINE

Revision: Loc Nguyen - Date: February 2009

DEPARTMENT: Engineering & Engineering Technology
CURRICULUM: CAD / Design Technology
COURSE TITLE: CAD Sheet Metal / HVAC
COURSE NUMBER: TDR 228
TYPE OF COURSE: Vocational Preparatory
COURSE LENGTH: 1 quarter
CREDIT HOURS: 4
LECTURE HOURS: 22
LAB HOURS: 44
CLASS SIZE: 24
PREREQUISITES: None

COURSE DESCRIPTION:

This course gives the students exposure to drawing HVAC plans and the basics of pattern development, material bending, seams, and intersections of geometric shapes that may be used in the sheet metal fabrication industry.

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Communication - Read and translate technical data relative to geometric spatial relationships into a graphical form easily understood by others with similar technical understanding.
2. Computation - Use basic mathematical operations as required to define geometrical spatial relationships.
3. Human Relations - Use social interactive skills to enhance learning through informal tutoring activities.

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STUDENT LEARNING OUTCOMES ADDRESSED: (cont.)

4. Critical Thinking and Problem Solving - Organize and evaluate technical data, as well as select and apply appropriate spatial relationship principles to determine problem solution.
5. Technology - Select and use appropriate technological tools to create technical graphics.
6. Personal Responsibility - Value and take pride in one's own skill and work, and manage time to meet required schedules.
7. Information Literacy - Access, evaluate and apply information from technical texts.

PROGRAM OUTCOMES ADDRESSED

- 1 Ability to apply knowledge of mathematics and scientific principles to technical engineering/drafting problems.
- 2 Ability to analyze and interpret data.
- 3 Ability to think critically in evaluating information, solving problems, and making decisions.
- 4 Ability to function on diverse, multi-disciplinary teams.
- 5 Ability to access and evaluate information from a variety of sources, including the Internet.
- 6 Understand professional and ethical responsibility.
- 7 Ability to communicate effectively with written, oral, and visual means.
- 8 Recognize the need for and ability to engage in life-long learning.
- 9 Ability to use modern technical engineering techniques, skills, and technology, including computing tools necessary for technical engineering/drafting practice.

GENERAL COURSES OBJECTIVES:

At the end of the course the student will:

1. Discuss the purpose and function of HVAC systems.
2. Prepare complete HVAC drawings', including plans, schedules, and details.
3. Draw sheet metal pattern developments in intersection.
4. Calculate and apply bend allowances to sheet metal components.
5. Draw and completely dimension precision sheet metal fabrication drawings.
6. Use an engineering problem as an example for HVAC and sheet metal drawing solutions.

TOPICAL OUTLINE:	APPROX HOURS
I. Heating, Ventilating, Air Conditioning (HVAC)	12
II. Pattern Developments for Cylinder Cone, Elbow	6
III. Pattern Developments for Pyramid	6
IV. Pattern Developments for Offset Transition Piece.	6
V. Pattern Developments of Triangulation problem	6
VI. Intersection and Pattern Development for	
a. Intersecting Cylinders	6
VII. Intersection of Cylinders, Cone and Square Funnel	
a. Development of Cone	12
VIII. Chassis Fabrication Drawing, Calculation of Bend	
a. Allowance, Arrowless Datum Dimensioning,	
b. Tabular Dimensioning	<u>12</u>
Total	66

REVISED BY: Loc. Nguyen
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