

## COURSE OUTLINE

Revision: L.Nguyen May. 01, 2010

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.

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STUDENT LEARNING OUTCOMES ADDRESSED: (cont.)

3. Human Relations - Use social interactive skills to enhance learning through informal tutoring activities.
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.

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.

TEXT BOOKS:

1. Sheet Metal Pattern Drafting by Daugherty, Powel, Foster Latest Ed. Glencoe/ Mc Graw Hill Publishing
2. Heating and cooling Essentials by Killinger. The Goodheart Wilcox
3. Blueprint Reading for HVAC by Miller and Miller. Delmar publishing

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 Intersecting Cylinders	6
VII. Intersection of Cylinders, Cone and Square Funnel Development of Cone.	12

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TOPICAL OUTLINE: (cont.)	APPROX. HOURS
VIII. Chassis Fabrication Drawing, Calculation of Bend Allowance, Arrowless Datum Dimensioning, Tabular Dimensioning	<u>12</u>
Total	66

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