COURSE INFORMATION FORM

DISCIPLINE        HVAC
COURSE TITLE      Principles of Heating, Ventilation & Air Conditioning
CR.HR             3    LECT HR.       3    LAB HR.    CLIN/INTERN HR.    CLOCK HR.

CATALOG DESCRIPTION
Introduction to the basic elements of heating, ventilation and air conditioning systems. Heat laws, psychrometrics, heating and cooling load estimating, design and distribution.

PREREQUISITES
None

EXPECTED STUDENT OUTCOMES IN THE COURSE (ESO)
Upon completion of this course, the student will be able to:
1. Describe the compression and refrigeration cycle.
2. Identify the major components of a compression type refrigeration system.
3. Define terms related to the HVAC/R industry.
4. Calculate R-factor and heat transfer multipliers.
5. Demonstrate an understanding of proper use of the sling psychrometer.
6. Demonstrate an understanding of proper use of psychrometric charts.
7. Test temperatures.
8. Test moisture indicators.
9. Test humidity, measure dry bulb, wet bulb, and dew point.
10. Estimate heating and cooling loads.
11. Design basic air distribution system.
12. Demonstrate an understanding of the business community.
GENERAL EDUCATION OUTCOMES (ESO)
Specify which general education outcomes, if any, are substantially addressed by the course. Numbers in parentheses identify the Expected Student Outcomes linked to the specific General Education Outcome.

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<tr>
<th>Outcomes</th>
<th>ESO</th>
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PROGRAM-LEVEL OUTCOMES

CAREER AND TECHNICAL EDUCATION PROGRAM OUTCOMES
Specify which Career and Technical program outcomes, if any, are substantially addressed by the course by completing the “Career and Technical Education template” to show the relationship between course and program outcomes to assessment measures.

1. Student will demonstrate professional oral and written communication skills.
2. Student will think critically and apply problem-solving skills.

CLASS-LEVEL ASSESSMENT MEASURES
Student accomplishment of expected student outcomes may be assessed using the following measures. (Identify which measures are used to assess which outcomes.)

1. Quizzes and written exams: (1 – 11)
2. Homework and classroom exercises: (1-11)
3. Student participation in classroom discussions: (1-12)
Individual instructors may order this outline as fits the needs of their individual courses. In addition, they may place more emphasis on some areas than on others. What is assured is that this particular list is covered in the course. Other topics may be added to a course as the instructor sees fit, and as time and interest allow. An *asterisk can be used to mark an item as optional.

I. Introduction to Air Conditioning
   A. Body Comfort
   B. Air Cycle
   C. Refrigerants and the refrigeration cycle
   D. Components in the refrigeration circuit

II. Psychrometrics
    A. Psychrometric chart
    B. Application of psychometric terms
    C. Psychrometric Process

III. Principles of load estimating
     A. Source of heat
     B. Cooling and heating load estimates
     C. Calculations of heat gains

IV. Air Distribution
    A. Ducts and duct design
    B. Duct sizing