COURSE OUTLINE

ACHP 105 – Refrigeration System Design

Prepared By: Stan Skowronek
A. **TITLE:** Refrigeration System Design

B. **COURSE NUMBER:** ACHP 105

C. **CREDIT HOURS:** (2)

D. **WRITING INTENSIVE COURSE:** No

E. **COURSE LENGTH:** (15 weeks)

F. **SEMESTER(S) OFFERED:** Spring

G. **HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY:**
   2 hours lecture per week

H. **CATALOG DESCRIPTION:** The refrigeration system and its component parts are studied in detail. Components are sized and selected to meet application requirements and then system equilibrium is determined.

I. **PRE-REQUISITES/CO-REQUISITES:** ACHP 103 - Refrigeration and AC Services I, (Co-course) ACHP 104 – Refrigeration and AC Services II

J. **GOALS (STUDENT LEARNING OUTCOMES):**
   By the end of this course, the student will be able to:

<table>
<thead>
<tr>
<th>Course Objective</th>
<th>Institutional SLO</th>
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<tbody>
<tr>
<td>a. Calculate load and select equipment for a walk in cooler</td>
<td>1. Communication 3. Prof. Competence</td>
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<tr>
<td>b. Calculate load and select equipment for an air conditioning system</td>
<td>1. Communication 3. Prof. Competence</td>
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<tr>
<td>c. Calculate ductwork requirements for a commercial building</td>
<td>2. Critical Thinking 3. Prof. Competence</td>
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<tr>
<td>d. Prepare design proposal for a residential HVAC system</td>
<td>1. Communication</td>
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<td>e. Apply manufacturer engineering guides to pick out equipment</td>
<td>2. Crit. Thinking</td>
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<td>f. Navigate supplier catalogs to source components</td>
<td>3. Prof. Competence</td>
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L. **REFERENCES:** N/A

M. **EQUIPMENT:** Basic sketching equipment (ruler, mechanical pencil)

N. **GRADING METHOD:** (A-F)

O. **MEASUREMENT CRITERIA/METHODS:**
• Design projects
• Participation

P. DETAILED COURSE OUTLINE:

I. Refrigeration
   A. Cooler load calculations
   B. Cabinet Design
   C. Equipment design
   D. Equipment selection

II. Residential HVAC
    A. Heat Load
    B. Cooling Load
    C. Ventilation
    D. Equipment selection
    E. Design proposal

III. Commercial Ductwork
     A. Ductwork calculations
     B. Design
     C. Specification
     D. Ductwork Sketching

IV. Equipment Sourcing
    A. Refrigeration
    B. Heating
    C. Residential cooling