

**STATE UNIVERSITY OF NEW YORK
COLLEGE OF TECHNOLOGY
CANTON, NEW YORK**



COURSE OUTLINE

ACHP 105 – Refrigeration System Design

Prepared By: Stan Skowronek

**CANINO SCHOOL OF ENGINEERING TECHNOLOGY
MECHANICAL & ENERGY TECHNOLOGIES
May 2015**

- 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:

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

- K. **TEXT:** Althouse, Turnquist, Bracciano. 19th edition, **Modern Refrigeration and Air Conditioning.** Goodheart-Willcox

REFERENCES: N/A

- L. **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