

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



COURSE OUTLINE

ACHP 264 – AIR CONDITIONING SYSTEMS DESIGN

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**CANINO SCHOOL OF ENGINEERING TECHNOLOGY
MECHANICAL & ENERGY TECHNOLOGY
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- A. **TITLE:** Air Conditioning Systems Design
- B. **COURSE NUMBER:** ACHP 264
- C. **CREDIT HOURS:** 1
- D. **WRITING INTENSIVE COURSE (OPTIONAL):** N/A
- E. **COURSE LENGTH:** 15 weeks
- F. **SEMESTER(S) OFFERED:** Spring
- G. **HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY:**
3 hours laboratory per week.
- H. **CATALOGUE DESCRIPTION:**
Air conditioning systems are designed for specific buildings, equipment selected, working drawings made and specifications written.
- I. **PRE-REQUISITES/CO-COURSES:** SOET 250 – Intro to 3D CAD and BIM
ACHP 243 – Air Conditioning I
ACHP 253 – Domestic & Commercial Heating I

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

<i>Course Objective</i>	<i>Institutional SLO</i>
a. Perform heating & cooling load calculations	2. Crit. Thinking 3. Prof. Competence
b. Select cooling & heating equipment to meet a building's energy need	2. Crit. Thinking 3. Prof. Competence
c. Design duct and piping systems for each project	2. Crit. Thinking 3. Prof. Competence
d. Design complete heating, ventilating and air conditioning systems for a building	2. Crit. Thinking 3. Prof. Competence

- K. **TEXTS:** None required
- L. **REFERENCES:** ASHRAE Handbook-Fundamentals
Carrier Design Manual
ASHRAE Handbook-Applications
Air Conditioning Principles and Systems: An Energy Approach by Edward Pita - John Wiley
Principles of Refrigeration - Dossat
Carrier Systems Design Manual - Part 2 - Air Distribution
Bell & Gossett Engineering Manuals
Mfg. Catalogs and Bulletins
- M. **EQUIPMENT:** None
- N. **GRADING METHOD:** (P/F, A-F, etc.) A-F
- O. **MEASUREMENT CRITERIA/METHODS:** Graded Projects

P. DETAILED TOPICAL OUTLINE:

The course consists entirely of projects. All project reports should contain the following information in the order given:

1. Cover
2. Title Page
3. Index
4. Statement of Project
5. Design Criteria
6. Equipment Specifications
7. Load Calculations
8. Psychrometric Charts Where Required
9. Distribution System Calculations
10. Equipment Selection Calculations
11. Working Drawings Including All Detail Drawing Necessary
12. List of Materials

Projects will be evaluated on correct application of engineering principle, appropriateness of system and equipment selected for the problem, organization and presentation of report, completeness of report and drawings, neatness and drawing technique.

Q. LABORATORY OUTLINE: None

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PROJECT DESCRIPTIONS:

Air Conditioning Systems Design is a project oriented course in which each student has an opportunity to completely design and specify HVAC equipment and systems for two different buildings.

Project 1 is mainly a heating and ventilation problem.

Project 2 incorporates cooling and humidity control in addition to heating and ventilating.

It is up to the student to work independently on each project to develop the best system to arrive at the required building performance. Each project is a practical situation which one may find in industry and will help each student understand the overall system design procedure.

Each project report, when completed, will consist of two parts: the written report and the drawings.