SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Heating, Ventilation, Air Conditioning & Refrigeration Technology Program
Revision Date: August 2025

I. CATALOG DESCRIPTION

Course Number:	HVAC1237
Course Title:	Refrigeration Systems II
Prerequisite(s):	HVAC1109, HVAC1131 and HVAC1226
Catalog Description:	Emphasis on commercial refrigeration operation: controls, electrical wiring circuits, different refrigeration classifications and systems, methods of defrost, and basic ice making equipment.
Credit Hours:	3.0
Class Hours:	30
Lab Hours:	45
Total Contact Hours:	75

II. COURSE OBJECTIVES: *Course will:*

A. Describe basic commercial refrigeration components.
B. Illustrate refrigeration controls, equipment classifications and applications.
C. Introduce and develop electrical schematics.
D. Introduce defrost methods.
E. Introduce assembly of refrigeration lab trainer.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

A. Student Learning Outcomes: *Student will be able to:*
- **1.** Recognize commercial refrigeration components and their system function.
- **2.** Identify low, medium and high temperature applications.
- **3.** Interpret equipment schematics and control sequence of operation.
- **4.** Assemble a refrigeration system incorporating a pump-down system and defrost controls.
- **5.** Identify cuber and flaker ice machine operation.

B. General Education Learning Outcomes (GELOs)
- **1.** GELO #3: Critical Thinking & Problem Solving
  Outcome 5: Acquire and integrate knowledge and construct relationships across disciplines.

IV. CONTENT/TOPICAL OUTLINE

A. Receivers, filter Driers, Moisture/Liquid Indicators
B. Liquid Line Solenoid Valves, Suction Accumulators, EPR/CPR Valves
C. Low Ambient Controls, Heat Reclaim Systems, Refrigeration Equipment Classification
D. Temperature Controls, Electrical Schematics and Pictorials, Defrost Controls
E. Lab Installation of TXV and Receiver, Sight Glass, Liquid Line Solenoid
F. Lab Installation of Defrost Timers, Defrost Heaters and Defrost Termination Controls
G. Flaker and Cuber Ice Machines

V. INSTRUCTIONAL MATERIALS

A. Required Text(s): Althouse, Turnquist, Bracciano, Bracciano, and Bracciano, *Modern Refrigeration and Air Conditioning,* 20th Edition Ebook
B. Other Resources: Course material on Canvas accessible through the SCC Hub

C. Supplies: Calculator, writing utensils and notebook paper

VI. METHODS OF PRESENTATION/INSTRUCTION

A. Methods of presentation typically include a combination of the following:

1. Lectures
2. Classroom demonstrations
3. Classroom discussions
4. Instructional handouts
5. Video presentations
6. PowerPoint presentations

VII. METHODS OF EVALUATION

A. Methods of evaluation, although determined by the individual instructor, traditionally includes a combination of the following

1. Tests
2. Assessment Quizzes

VIII. SPECIFIC COURSE REQUIREMENTS

A. Student must meet all of the following to receive a passing grade:

1. Achieve a passing grade of "D" (60%) or higher, based on SCC grading scale.
2. Submit own work. Students turning in homework, reports, field notes, or calculations by someone other than themselves will receive 0% and be referred to the Division Dean and Dean of Students for further disciplinary action. Consequences can include failing the course.
3. Demonstrate attitude, skills, and character commensurate with industry standards.