

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

I. CATALOG DESCRIPTION

Course Number: HVAC2600
Course Title: HVAC/R Lab
Prerequisite(s): HVAC1461
Catalog Description: Application of servicing and troubleshooting residential and light commercial HVAC/R equipment, both mechanically and electrically. Emphasis is placed on “hands-on” use of service instruments, create electrical ladder diagrams, wire training panels and computer troubleshooting fault simulators. Troubleshoot and repair HVAC/R units brought into the shop for production.
Credit Hours: 2
Class Hours: 0
Lab Hours: 90
Total Contact Hours: 90

II. COURSE OBJECTIVES: *Course will:*

- A. Develop proficiencies in performing operational checks and troubleshooting.
- B. Recognize pictorial wiring for factory and field wiring.
- C. Analyze equipment operation for system faults.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Express knowledge of diagnostic instruments.
 - 2. Explain operational differences between Heat Pump, air conditioning operation and furnace diagnostics.
 - 3. Display proper completion of a Service ticket.
 - 4. Create a schematic or ladder diagram of the entire unit showing sequence of operation.
 - 5. Perform and record heating and cooling seasonal operational maintenance checks.
- 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. Lab Projects
- B. Service Calls
- C. Lab Trainers
- D. Production projects selected by the instructor

V. INSTRUCTIONAL MATERIALS

- A. Required Text(s): *HVAC Service Procedures Manual* from 4th semester Book number: 020-040
- B. Other Resources: Prior Semesters' Notes

VI. METHODS OF PRESENTATION/INSTRUCTION

- A.** Methods of presentation typically include a combination of the following:
 - 1.** In-Lab Service Calls
 - 2.** Lab demonstrations
 - 3.** Lab assistance
 - 4.** Instructional handouts
 - 5.** Manufacturer's Service manuals

VII. METHODS OF EVALUATION

- A.** Methods of evaluation, although determined by the individual instructor, traditionally includes a combination of the following:
 - 1.** Lab Projects
 - 2.** Production/Diagnostic Projects (as assigned or available)
 - 3.** Quizzes

VIII. SPECIFIC COURSE REQUIREMENTS

- A.** Student must meet all of the following to receive a passing grade:
 - 1.** 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.
 - 2.** Demonstrate attitude, skills, and character commensurate with industry standards.
 - 3.** All program policies of the Heating, Ventilation, Air Conditioning, & Refrigeration Technology program will be strictly enforced.