SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Heating, Ventilation, Air Conditioning & Refrigeration Technology Program
Revision Date: August 26, 2019
Syllabus Statements

I. CATALOG DESCRIPTION

Course Number:	HVAC2610
Course Title:	HVAC Troubleshooting
Prerequisite(s):	HVAC1461
Catalog Description:	Theory and lab application of operating and service of residential and light commercial heating, A/C and heat pump equipment along with interactive computer programs to acquire experience with wiring, function, operation and troubleshooting various systems.
Credit Hours:	3
Class Hours:	30
Lab Hours:	45
Total Contact Hours:	75

II. COURSE OBJECTIVES: *Course will:*

A. Describe heating and cooling operational checks.
B. Outline troubleshooting using a systematic approach.
C. Discuss performing servicing procedures.
D. Interpret schematic or ladder diagram of SCC Training Panels showing the logic of operation.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

A. Student Learning Outcomes: *Student will be able to:*
- **1.** Evaluate, analyze, and demonstrate the proper steps to perform heating and cooling operational checks.
- **2.** Perform the proper steps in troubleshooting residential HVAC equipment using a systematic approach.
- **3.** Analyze wiring diagrams to properly control and troubleshoot different types of residential HVAC equipment.
- **4.** Demonstrate ability to rebuild, startup, test, and correct the efficiency of different types of furnaces and to properly install, recover, evacuate and recharge air conditioning systems.
- **5.** Show troubleshooting skills to diagnose and repair HVAC equipment using proper tools and equipment.

B. General Education Learning Outcomes (GELOs)
- **1.** GELO #3: Critical Thinking & Problem Solving
  Outcome 1: Collect, identify, interpret and analyze data.

IV. CONTENT/TOPICAL OUTLINE

A. Simutech Computer Programs
B. SCC Training Panels creating and reading schematic or ladder diagrams
C. Hampden Fault Simulators
D. Troubleshooting
E. Air Conditioning operation

F. Furnace Operation
G. Heat Pump Operation

V. INSTRUCTIONAL MATERIALS

A. Required Text(s): *DuPoint Troubleshooting Techniques*
B. Other Resources: Prior Semesters' Notes, SCC Training Panels and Hampden Fault Simulators
C. Supplies: Tools required by the HVAC Program

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.** Lab Projects
- **2.** Test
- **3.** 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.