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:	HVAC1131
Course Title:	Refrigeration Systems I
Prerequisite(s):	None
Catalog Description:	Basic refrigeration fundamentals: types of heat energy/heat transfer, temperature, pressure, refrigerants, refrigerant oils, stratospheric ozone, greenhouse effect, EPA Section 608 guidelines, basic refrigeration system and function.
Credit Hours:	3
Class Hours:	45
Lab Hours:	0
Total Contact Hours:	45

II. COURSE OBJECTIVES: *Course will:*

A. Introduce basic refrigeration fundamentals and terminology.
B. Introduce heat transfer fluids and lubricants.
C. Identify HVAC/R impact to Earth's atmosphere.
D. Discuss Federal HVAC regulations.
E. Describe the basic parts to a refrigeration system.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

A. Student Learning Outcomes: *Student will be able to:*
- **1.** Recognize basic methods of heat transfer, temperature scales and saturation of fluids.
- **2.** Classify different refrigerants and refrigeration oils.
- **3.** Explain Stratospheric Ozone and Greenhouse Effect.
- **4.** Interpret EPA Section 608 guidelines.
- **5.** Identify a basic refrigeration cycle.

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. HVAC/R terminology, heat transfer and temperature
B. Pressures and Vacuums
C. Halogens
D. Refrigerants and PT charts
E. Refrigeration lubricants
F. Ozone
G. Global Warming/Greenhouse Effects
H. EPA Regulations
I. Section 608 Clean Air Act

J. Compressors
K. Condensers
L. Metering Devices
M. Evaporators

V. INSTRUCTIONAL MATERIALS

A. Required Text(s): Althouse, Turnquist, Bracciano, Bracciano, and Bracciano, *Modern Refrigeration and Air Conditioning*, 19th Edition
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.** 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.