SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Heating, Ventilation, Air Conditioning & Refrigeration Technology Program
Revision Date: August 24, 2020
Syllabus Statements

I. CATALOG DESCRIPTION

Course Number:	HVAC1251
Course Title:	Hydronic Heating
Prerequisite(s):	None
Catalog Description:	Hot water heating systems emphasizing their classifications, ratings, component requirements, and installation practices for residential/small commercial systems.
Credit Hours:	3
Class Hours:	30
Lab Hours:	45
Total Contact Hours:	75

II. COURSE OBJECTIVES: *Course will:*

A. Introduce the fundamental concepts of hydronic heating systems.
B. Introduce the different types of components used in hydronic systems.
C. Explain different types of radiant floor systems and proper installation.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

A. Student Learning Outcomes: *Student will be able to:*
- **1.** Identify the differences between forced air heating and hydronic heating.
- **2.** Develop the ability to design and install an energy efficient residential hydronic system.
- **3.** Identify the difference between conventional and condensing boilers.
- **4.** Recognize components in a hydronics system, pumps, expansion tank, pressure relief valve, and controls.

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. Welcome to the World of Hydronics
B. Fundamental Concepts
C. Piping, Fittings and Valves
D. How water temperatures affect system components
E. Fluid Flow in Piping
F. Circulating Pumps
G. Heat Emitters
H. Expansion Tanks
I. Hydronic Heat Sources

V. INSTRUCTIONAL MATERIALS

A. Required Text(s): Siegenthaler, *Modern Hydronic Heating for Residential and Light Commercial Buildings,* 3rd Edition

B. Supplies: 3-Ring notebook and Calculator

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. Lab demonstrations
5. Instructional handouts and worksheets
6. Video presentations
7. 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. Quizzes
3. Lab participation

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.
4. HVAC Program required tools and supplies.