

SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Design & Drafting Technology Program
Revision Date: August 22, 2022

I. CATALOG DESCRIPTION

Course Number: DDRT1207
Course Title: Heating & Air Conditioning Systems I
Prerequisite(s): None
Catalog Description: Methods of calculating heat loss and heat gain for residential buildings according to ACCA Manual J.
Credit Hours: 2
Class Hours: 30
Lab Hours: 0
Total Contact Hours: 30

II. COURSE OBJECTIVES: *Course will:*

- A. Introduce terms associated with the HVAC industry.
- B. Allow a better understanding of the engineering involved in the construction of buildings.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Understand the basic principles of heat loss and heat gain.
 - 2. Understand all terminology associated with the projects.
 - 3. Determine the design conditions for the assigned buildings.
 - 4. Determine the area of the different building materials.
 - 5. Determine the different types of construction on the plans and select the appropriate construction number from Manual J.
 - 6. Determine the heat loss of the building.
 - 7. Determine the heat gain of the building.
 - 8. Calculate the heat loss and heat gain of additional buildings as assigned. Carrying out the projects from start to finish.
- B. General Education Learning Outcomes (GELOs)
 - 1. GELO #5: Analytical, Quantitative, and Scientific Reasoning
Outcome 4: Manipulate formulas, data sets, graphs, tables, etc. in a way to produce a meaningful outcome.

IV. CONTENT/TOPICAL OUTLINE

- A. Basic principles
- B. Manual J design conditions
- C. Measuring for heat transmission
- D. Factors affecting heat loss
- E. Heat loss calculation procedures
- F. Factors affecting heat gain
- G. Heat gain calculation procedures

V. INSTRUCTIONAL MATERIALS

- A. Required Text(s): *ACCA Manual J* (Refer to CID and/or instructor for current edition)
- B. Other Resources: J-1 forms

VI. METHODS OF PRESENTATION/INSTRUCTION

- A. Methods of presentation typically include a combination of the following:
 - 1. Lecture, classroom discussion
 - 2. Videos

VII. METHODS OF EVALUATION

- A. Methods of evaluation, although determined by the individual instructor, traditionally includes a combination of the following:
 - 1. Attendance and participation
 - 2. Daily assignments
 - 3. Written exams and/or quizzes
 - 4. Performance and observational assessment

VIII. SPECIFIC COURSE REQUIREMENTS

- A. Students must meet all of the following:
 - 1. Achieve passing grade of 60% or higher, based on SCC grading scale.
 - 2. Submit own work. Students turning in calculations or homework by someone other than themselves will receive a grade of 0% and will be referred to the Dean of Students for further disciplinary action.