

SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Building Construction Technology Program
Revision Date: August 22, 2022

I. CATALOG DESCRIPTION

Course Number: CNST2643
Course Title: Fundamentals of Structural Steel
Prerequisite(s): None
Catalog Description: Introduction to iron and steel making, structural shapes, design and sizing of steel structural systems, joists, beams, and columns.
Credit Hours: 2
Class Hours: 30
Lab Hours: 0
Total Contact Hours: 30

II. COURSE OBJECTIVES: *Course will:*

- A. Understand the iron and steel making process and the tolling of the various structural steel shapes used in building construction.
- B. Use AISC publications to identify various structural steel shapes.
- C. Identify and calculate weights of structural steel shapes.
- D. Identify SJI standards for joists, and design roof and floor structural systems using open web steel joists.
- E. Compare beam loads to column heights.
- F. Understand various structural systems and connections including beam-to-beam, column-to-beam, and column-to-concrete.
- G. Design roof and floor systems, beams, and lintels for the commercial building project (CNST2649).

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Understand how steel is made and possible steel plant options the process of how long it takes to make steel.
 - 2. Read a steel shop drawing, know the shape, size and weight of materials from a drawing.
- B. General Education Learning Outcomes (GELOs)
 - 1. GELO #5: Analytical, Quantitative and Scientific Reasoning
Outcome 1: Apply mathematical and scientific methods to solve problems from an array of contexts and everyday situations.

IV. CONTENT/TOPICAL OUTLINE *(course outline may provide more detailed information)*

- A. Using AISC and other structural steel manuals
- B. Calculating loads
- C. Sizing structural steel shapes
- D. Sizing roof joist
- E. Sizing floor joist
- F. Sizing beams

V. INSTRUCTIONAL MATERIALS

- A. Required Text(s):

1. *AISC Manual of Steel Construction* (Refer to CID and/or instructor for current edition)
2. *Vulcraft's Steel Joist Catalog*
- B. Other Resources: Videos, PowerPoints, handouts
- C. Supplies: Calculator, tape measure, pencil and notebook

VI. METHODS OF PRESENTATION/INSTRUCTION

- A. Methods of presentation may include a combination of the following:
 1. Lecture
 2. Classroom demonstration
 3. Classroom discussion
 4. Video presentation
 5. PowerPoint presentations
 6. Speaker(s)
 7. Field Trip(s)
 8. Instructional handouts

VII. METHODS OF EVALUATION

- A. Methods of evaluation, although determined by the individual instructor, traditionally includes a combination of the following:
 1. Tests which are worth 60% of your grade.
 2. Quizzes are worth 20% of your grade and cannot be made up. If you miss a quiz, you will get a zero.
 3. The Final Exam is worth 20% of your grade.
 4. Student's responsibility is to notify the instructor when he/she will be absent.
 5. If absent, student is responsible to get class notes, homework assignments, request handouts, etc. to keep current with the progress of the rest of the class.

VIII. SPECIFIC COURSE REQUIREMENTS

- A. Student must meet all of the following to receive a passing grade:
 1. Achieve a passing grade of "C" (70%) 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.
 4. All program policies of the Building Construction Technology program will be strictly enforced.
 5. Intentional damage to college property will not be tolerated and may result in punitive action, such as being removed from the program.
 6. All cell phones will be turned off during class/lab time. If this becomes a problem, the instructor may consider the delinquent student absent.