

**J. Sargeant Reynolds Community College
Course Content Summary**

Course Prefix and Number: BLD 210

Credits: 3

Course Title: Building Structures

Course Description: Introduces analysis and design of steel, wood, and reinforced concrete structural members including loads, reactions, bending moments, stresses, and deflection for selection of beam and column sizes. Considers bolted and welded connections in steel design. Introduces determination of reinforcing steel sizes and arrangements in concrete members. Prerequisite: MTH 131. Lecture 3 hours per week

General Course Purpose: The primary purpose of this course is to provide the student with a fundamental understanding of the engineering principles that govern the structural design of a building structure. Course required for the Contemporary Technology for Design and Building Construction Management specialization of the Architectural and Engineering Technology AAS degree.

Course Prerequisites and Co-requisites:

Prerequisite: MTH 131

Student Learning Outcomes:

Upon completing the course, the student will be able to

- a. Analyze simple structures and size beams and columns;
- b. Recognize grades and shapes of structural steel;
- c. Use formulas, charts, tables, and load requirements to size structural members; and
- d. Draw shear and bending moment diagrams for all types of beams.

Major Topics to Be Included:

- a. Structural shapes
- b. Unit stress
- c. Reactions, moments, and shear
- d. Theory of bending and properties of sections
- e. Use of the beam formula, beam design, and deflection
- f. Floor framing systems

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