

Minnesota State University Moorhead

CM 350: Structural Analysis

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 3

Lab Hours/Week: 0

OJT Hours/Week: *.*

Prerequisites:

MATH 127L - College Algebra with Lab

Corequisites: None

MnTC Goals: None

Students will understand fundamental concepts for the design and construction of structures, both temporary and permanent. Students will demonstrate knowledge of design processes by appropriate selection of structural members for given loading conditions. Topics include beam and column design for both structural steel and wood, tributary loads, scaffolding applications in construction, concrete formwork design, bridge construction, and temporary falsework applications.

B. COURSE EFFECTIVE DATES: 02/02/2017 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Analysis and Design of Construction Systems including:
 - ¿ Fundamentals of Statics
 - ¿ Review of Strength of Materials
 - ¿ Shear and Moment Diagrams
 - ¿ Tributary Areas
 - ¿ Steel Beam and Column Design
 - ¿ Wood Beam and Column Design
 - ¿ Concrete Formwork Design
 - ¿ Cofferdams and Piling
 - ¿ Scaffolding Applications

D. LEARNING OUTCOMES (General)

1. Students will understand the basic principles and terminology associated with structural behavior.
2. Students will analyze lifting and hoisting systems, specifically addressing crane parameters, including safety, load calculations, lifting radius, and other properties.
3. Students will have a fundamental understanding of the design process through applications of beam (steel and wood) design and concrete formwork design.
4. Understand cofferdam types and their application, estimated costs, and schedules.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted