

Minnesota State University Moorhead

CM 223: Construction Statics

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 3

Lab Hours/Week: 0

OJT Hours/Week: *.*

Prerequisites:

- MATH 229 - Calculus for Business and Social Sciences; OR
- MATH 234 - Introduction to Probability and Statistics

Corequisites: None

MnTC Goals: None

Elementary principles of statics utilizing algebra, trigonometry, and analytical geometry. Material includes force vectors, static equilibrium, simple structures, friction effects, centroids. Will not transfer to engineering programs.

B. COURSE EFFECTIVE DATES: 08/23/2010 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Math review.
2. Force vectors and systems of forces.
3. Moments about an axis.
4. Resultants of co-planar force systems.
5. Static equilibrium applied to co-planar force systems.
6. Analysis of trusses, frames and machines.
7. Analysis of dry friction.
8. Centroids and area moments of inertia.

D. LEARNING OUTCOMES (General)

1. Determine the resultant when a system of 2 or more co-planar forces are added or subtracted.
2. Determine the moment caused by a co-planar force system about a specified point.
3. Replace a system of co-planar forces with an equivalent force or force/moment system.
4. Determine the combination of forces in a system necessary to enforce static equilibrium.
5. Determine the magnitude of the internal forces in each member of a truss, and state whether the force is acting in tension or compression.
6. Determine the internal forces at each pin in a frame or machine in response to a specified set of externally-applied forces.
7. Determine the normal and frictional forces involved when the motion of a body impends, and determine if that motion will be slipping or tipping.
8. Determine the location of the centroid for a 2-dimensional shape.
9. Determine the area moment of inertia about a specified axis for a 2-dimensional shape.

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

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted