

Bemidji State University

TADT 2217: Strength of Materials

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: *.*

Lab Hours/Week: *.*

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

An introduction to stress, strain, and deformation analysis of materials subjected to axial, torsional, and bending loads. Basic mechanics concepts such as defects, elasticity, plasticity, and failure are introduced. Prerequisite: PHYS 1101.

B. COURSE EFFECTIVE DATES: 08/22/2016 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Buckling
2. Elasticity and Plasticity
3. Failure
4. Loading conditions
5. Stress and Strain
6. Young's Modulus and Poisson's Ratio

D. LEARNING OUTCOMES (General)

1. . be able to select appropriate materials in a structural design by considering sustainability, health, safety, material properties, manufacturability, cost, and weight.
2. . be able to analyze and design structures subjected to kinematic modes of deformation (tension, compression, torsion, and bending loads).
3. . be able to determine material properties such as Young's modulus, yield stress, ultimate tensile strength, and Poisson's ratio from structural testing data.

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

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted