

Course Topics (Subject to Change):

TOPICS

I. Fundamentals of Stress and Strain

Internal Forces
Normal and Shear Stress
Introduction to Design
Strain
Mechanical Properties of Materials
Stress Transformation I
Stress Transformation II
Strain Transformation I
Strain Transformation II

II. Axial Loads and Torsional Loads

Fatigue & Stress Concentrations
Thin-Walled Pressure Vessels
Axial Deformation I
Axial Deformation II
Elastic Torsion I
Elastic Torsion II
Theories of Failure
Statically Indeterminate Torsion Members
Inelastic Torsion

III. Bending

Shear and Bending Moment Diagrams I
Shear and Bending Moment Diagrams II
Elastic Bending I
Elastic Bending II
Inelastic Bending by Equilibrium
Transverse Shear Stress I
Transverse Shear Stress II
Design of Prismatic Beams
Combined Loading I
Combined Loading II

IV. Beam Deflections and Buckling

Introduction to Beam Deflections
Beam Deflection by Discontinuity Functions
Beam Deflection by Superposition
Column Buckling I
Column Buckling II & Laboratory IV: Column Buckling
Course Overview / Course Critique

- The Mathematics Learning Center, RBN 4021, this is the open access computer lab for math students, with tutors on duty to assist students who are enrolled in early-career courses.
- [UT Tyler Counseling Center](#) (903.566.7254)

UT Tyler a Tobacco-Free University: All forms of tobacco will not be permitted on the UT Tyler main campus, branch campuses, and any property owned by UT Tyler. This applies to all members of the University community, including students, faculty, staff, University affiliates, contractors, and visitors.

Forms of tobacco not permitted include cigarettes, cigars, pipes, water pipes (hookah), bidis, kreteks, electronic cigarettes, smokeless tobacco, snuff, chewing tobacco, and all other tobacco products.

There are several cessation programs available to students looking to quit smoking, including counseling, quitlines, and group support. For more information on cessation programs please visit www.uttyler.edu/tobacco-free.

Campus Carry: We respect the right and privacy of students 21 and over who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at <http://www.uttyler.edu/about/campus-carry/index.php>

Prepared by: Michael V. Gangone, Ph.D.
Associate Professor
Department of Civil and Environmental Engineering

