J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: EGR 136 **Credits:** 3

Course Title: Strength of Materials for Engineering Technology

Course Description:

Presents concepts of stress and strain. Focuses on analysis of stresses and deformations in loaded members, connectors, shafts, beams, columns and combined stress. Lecture 3 hours per week.

General Course Purpose

Mechanics course for AAS Engineering Technology majors.

Course Prerequisites: EGR 135

Course Objectives

Upon completing the course, the student will be able to:

a. Identify and calculate the different types of stress.
b. Identify and calculate the different types of strain.
c. Solve problems using the stress-strain relationships.
d. Identify and calculate the properties of materials such as Poisson's ratio, etc.
e. Solve problems using the torsion equations.
f. Identify and solve the different types of beams,
g. Solve for moment and/or shear in these beams.
h. Construct moment and shear diagrams.
i. Solve for the stresses in a beam subject to combined loading.
j. Solve for deflection of beams.
k. Solve problems involving structural connections.
l. Solve problems involving columns.
m. Solve statically indeterminate problems.

Major Topics to be Included

a. Simple stresses
b. Relationship between stress and strain
c. Centroid and moments of inertia of composite areas (review)
d. Stresses and deformations in torsion shafts
e. Shear forces and bending moments in beams
f. Stresses in beams
g. Deflection of beams
h. Combined stresses
i. Structural connections
j. Columns
k. Statically indeterminate problems
l.

Effective Date of Course Content Summary: August 2008