

**J. Sargeant Reynolds Community College  
Course Content Summary**

**Course Prefix and Number:** EGR 140

**Credits:** 3

**Course Title:** Engineering Mechanics — Statics

**Course Description:** Introduces mechanics of vector forces and space, scalar mass and time, including SI and US customary units. Teaches equilibrium, free-body diagrams, moments, couples, distributed forces, centroid, moments of inertia, analysis of two-force and multi-force members, and friction and internal forces. Prerequisite: MTH 173. Lecture 3 hours, Total 3 hours

**General Course Purpose:** Engineering Mechanics course for AS Engineering majors.

**Course Prerequisites and Co-requisite:**

Prerequisite: MTH 173

**Course Objectives:**

Upon completing the course, the student will be able to

- a. Solve for unknown forces in a variety of situations;
- b. Know how to solve for centroid and the moment of inertia;
- c. Solve for shear and bending forces; and
- d. Solve problems involving friction.

**Major Topics to Be Included:**

- a. Vector
- b. Components
- c. Equilibrium
- d. Rigid bodies
- e. 3-D forces
- f. Vector products
- g. Dot products
- h. Couples
- i. 3-D equilibrium
- j. Centroid
- k. Distributed loads
- l. Submerged surfaces
- m. Trusses
- n. Frames and machines
- o. Shear and bending
- p. Friction
- q. Moment of inertia

**Effective Date of Course Content Summary:** August, 2008