

**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 263. Lecture 3 hours, Total 3 hours

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

Course Prerequisites and Co-requisite:

Prerequisite: MTH 263

Student Learning Outcomes:

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

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