

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

**Course Prefix and Number:** EGR 245

**Credits:** 3

**Course Title:** Engineering Mechanics - Dynamics

**Course Description:** Presents approach to kinematics of particles in linear and curvilinear motion. Includes kinematics of rigid bodies in plane motion. Teaches Newton's second law, work-energy and power, impulse and momentum, and problem-solving using computers. Prerequisite: EGR 140. Lecture 3 hours per week.

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

**Course Prerequisites and Co-requisites:**

Prerequisite: EGR 140

**Student Learning Outcomes:**

Upon completing the course, the student will be able to

- a. Solve problems with various forms of motion;
- b. Solve problems using the basic laws of force and motion;
- c. Solve problems using the basic laws of energy and momentum; and
- d. Solve problems using the basic laws of impulse and momentum.

**Major Topics to Be Included:**

- a. Linear motion (1 dimension)
- b. Curved motion (2 dimensions)
- c. Rotational motion
- d. General plane motion
- e. Relative motion
- f. Force and acceleration
- g. Newton's second law
- h. Moments and angular acceleration
- i. Work and energy
- j. Conservation of energy
- k. Impulse and momentum
- l. Conservation of momentum
- m. Motion in space

**Date Created/Updated (Month, Day, Year):** January 25, 2019