ENGR 212 : DYNAMICS

Transcript title

Dynamics

Credits

4

Grading mode

Standard letter grades

Total contact hours

40

Lecture hours

40

Prerequisites

ENGR 211 and MTH 252.

Course Description

Studies kinematics, Newton's law of motion, and work-energy and impulse-momentum relationships as applied to engineering systems.

Course learning outcomes

1. Identify and apply kinematic and dynamic equations for a particle in Cartesian, cylindrical and path coordinates.
2. Apply methods of work-energy and impulse-momentum to describe the motion of a particle.
3. Apply the parallel axis theorem to determine moments of inertia of a body for specified axes.
4. Apply relative motion concepts using translating and rotating reference frames for 2-dimensional systems.
5. Apply Newton's equations to solve problems involving rigid bodies in plane motion.

Content outline

- Kinematics
- Curvilinear motion, kinematics
- Relative motion, kinetics and equations of motion, kinetics
- Work and energy methods, kinetics
- Impulse and momentum, impacts, angular momentum, rigid body kinetics
- Relative motion and rotating axes, kinetics
- Force and acceleration, equations of motion
- Force and acceleration

Required materials

A required Dynamics textbook.