

University of Arkansas - Fort Smith
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General Syllabus

ENGN 2763 Dynamics

Credit Hours: Lecture Hours: 3 Laboratory Hours: 0

Prerequisite: ENGN 2753 Engineering Statics

Effective Catalog: 2018-2019

I. Course Information

A. Catalog Description

A continuation of ENGN 2753. Topics covered include kinematics and kinetics of particles and rigid bodies work and energy, impulse, and momentum.

B. Additional Information

This course is a requirement for mechanical engineering majors. The course may also be taken by electrical engineering and mathematics majors for elective credit.

II. Student Learning Outcomes

A. Subject Matter

Upon successful completion of this course, the student will be able to:

1. Solve for the position, velocity and acceleration of a point or rigid body in general motion.
2. Solve for dynamic forces related to the motion of particles and rigid bodies.
3. Design a component or system for a specific application related to dynamics.
4. Apply energy methods for the analysis of dynamic systems.
5. Apply impulse-momentum principles for the analysis of dynamic systems.

B. University Learning Outcomes

This course enhances student abilities in the following areas:

Communication Skills (written and oral)

Students will give written and oral presentations related to an engineering design project. Students will present their homework to the class.

Analytical Skills

Critical Thinking Skills - Students will analyze specific engineering systems, solving for the forces and moments related to dynamic equilibrium.

Quantitative Reasoning - Students will create graphical and mathematical models to represent and simplify their analysis.

III. Major Course Topics

- A. Particle kinematics
- B. Particle kinetics
- C. Energy methods
- D. Impulse- momentum
- E. Rigid body kinematics
- F. Rigid body kinetics, and vibrations