

University of Arkansas - Fort Smith
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General Syllabus

ENGN 2753 Engineering Statics

Credit Hours: 3

Lecture Hours: 3

Laboratory Hours: 0

Prerequisite: MATH 2804 Calculus I

Effective Catalog: 2018-2019

I. Course Information

A. Catalog Description

Includes topics such as equilibrium of particles and rigid bodies, moments of forces, centroids, moments of inertia, analysis of structures, friction and virtual work. Both scalar and vector formulations are used, and methods of computer solutions are introduced.

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 forces and moments related to 2D and 3D equilibrium.
2. Create simplified models of complex engineering systems for static analysis.
3. Design static structures for a specific application.
4. Analyze systems with significant friction.
5. Locate the centroid of a composite 2D body

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

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

III. Major Course Topics

- A. 2D equilibrium
- B. 3D equilibrium
- C. Trusses
- D. Machines
- E. Friction
- F. Centroids