EGN 2311 - STATICS
Common Course Syllabus

Catalog Data: 3 CREDITS. Analysis of force and moment systems for static equilibrium of trusses, beams, frames, and machines; elements of frictions; centroid, center of gravity, center of mass, and moment of inertia.

Prerequisites: PHY 2048 Physics for Engineers I or equivalent

Co-requisites: MAC 2312 Calculus for Engineers II or equivalent

Goals: This course will provide students with the theory and applications of engineering mechanics of rigid stationary bodies. After finishing the course, students should be able to analyze simple structures and develop solution procedures using basic mechanics principles.

Topics:
1. Fundamental concepts of mechanics, unit systems
2. Force vectors
3. Equilibrium of a particle
4. Resultants of force systems
5. Equilibrium of a rigid body using free-body diagram
6. Structural analysis of trusses
7. Internal forces in structural members
8. Center of gravity and centroid
9. Moment of inertia

Course Outcomes: (numbers in parentheses indicate correlation of the outcome with the appropriate ABET program outcomes 1-7)
1. An ability to manipulate vector operators and apply them to particles and rigid bodies. (1)
2. An ability to draw free-body diagrams of particles and rigid bodies. (1)
3. An ability to determine internal forces in structures and shear force and bending moment in beams. (1)
4. An ability to calculate centroid and moment of inertia of complex areas. (1)
5. An ability to effectively communicate in writing a report on project. (3) (Optional)

Design Content:
This course has no design content.

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