

Course Title: EGT 136: Mechanics

Course Leader: Stephanie Rittler

Expected Learning Outcomes for Course:

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

1. Solve triangles.
2. Solve two and three simultaneous equations.
3. Add two-dimensional vectors.
4. Find force resultants in two dimensions.
5. Solve for external reactions using equilibrium.
6. Find forces in trusses.
7. Solve for forces on two-dimensional frames.
8. Analyze friction problems including dry, belt, and screw friction.
9. Solve problems with concurrent spatial force systems.
10. Find the centroid of a body.
11. Find the center of gravity of a body.
12. Find the area moment of inertia.

Assessment:

(How do students demonstrate achievement of these outcomes?)

Four exams, homework assignments

Validation:

(What methods are used to validate your assessment?)

Feedback from internship employers

Results:

(What does the data show?)

Students struggle with applying mathematical concepts to solve real-world engineering problems. Students also struggle with truss design problems.

Follow-up:

(How have you used the data to improve student learning?)

More time is spent reviewing mathematical concepts in the beginning of the course. Also, the prerequisite to this course has changed to MAT 114: Introduction to Applied Algebra. The curriculum in this course is more applied than the typical introductory algebra course (MAT 101). It uses real-world problems to introduce and apply the principles of algebra and trigonometry. More emphasis and time is placed on the design of trusses. An additional three-hour lecture has been added to emphasize this topic and provide practice for students. Also, an exam review session is available for students before they are tested on truss design.

Budget Justification:

Course Outcomes Guide #4

(What resources are necessary to improve student learning?)

Purchase material for structural stress analyzer (tensile tester) so students can build and test prototype truss bridges