

**Course Title:** EGT 136: Mechanics

**Course Leader:** Adam C. Bridendolph

**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 in EGT 231.

**Results:**

(What does the data show?)

Students struggle with applying mathematical concepts to solve real-world engineering problems. Some students also struggle with truss design problems. Some of the feedback has been great from employers looking for more students.

**Follow-up:**

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

More time is spent reviewing mathematical concepts and units in the beginning of the course. More emphasis and time is placed on the design of trusses. We recently acquired several bridge structures that will help with truss problems. This can be used in both EGT 136 and EGT 231.

**Budget Justification:**

(What resources are necessary to improve student learning?)

I think that it would serve students best to add an additional hour of lab or recitation so that students can work on hands on activities and homework. Structural stress analyzer (tensile tester) resources so students can build and test prototype truss bridges and test tensile strength of materials.