

1. Course Title:

Statics IET 311 – 4 Credits

4 hr Lecture per week

MET Core Program Requirement

Prerequisite: PHYS 111, 211 and MATH 173 or permission of instructor.

This is a Technical content course under ABET Criterion 5

2. Faculty Member Information:

Instructor: Dr. Edward Lulofs
Office: Lind 300-E
Phone: 509- 963-2726
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3. Course Description:

Introductory statics including forces and equilibrium. Principles of structures including trusses, beams, frames, machines and friction

4. Textbook and other required materials for the course:

Engineering Mechanics, Statics, tenth Edition or “one key edition”, R. C. Hibbeler. MacMillan, 1998. Recommended: TI-89 for chapter 5 onward that can solve 3 equations and 3 unknowns.

5. Specific Learner and Expressive Outcomes and Assessment Strategies:

ABET Outcome Criteria #	Learner Outcomes	Assessment Strategies
	1. Students will understand the relationships between metric and US units and have the ability to work in both arenas. A foundation for problem solving techniques is developed and students will be able to apply analytical skills in engineering statics, the study of forces on objects at rest.	Demonstrate these principles in classroom exercises, homework problems, examinations, and final report based on applying knowledge to solve analytical problems.
	2. Demonstrate an understanding of vectors and be able to express and resolve vectors in two and three dimensions.	Demonstrate these principles in classroom exercises, homework problems and examinations based on applying knowledge to solve analytical problems.
	3. Draw a free body diagram and solve for unknown forces in two and three dimensions for particle and rigid body systems. Demonstrate analytical skills by solving for unknown forces.	Demonstrate these principles in classroom exercises, homework problems, examinations, and final report based on applying knowledge to solve analytical problems.
	4. Students will be able to perform vector operations of dot and cross product and use these principals to solve for unknown forces in three dimensions. Demonstrate the ability to use the concepts of moments and couples in qualitative and quantitative applications.	Demonstrate these principles in classroom exercises, homework problems and examinations based on applying knowledge to solve analytical problems.
	5. Apply the method of joints and sections to determine the forces in a truss	Demonstrate these principles in classroom exercises, homework problems and examinations based on

's members. Obtain the ability to determine joint reactions of simple frames or machines.	applying knowledge to solve analytical problems.
6. Students will understand the concept of friction and analyze rigid bodies subjected to dry friction.	Demonstrate these principles in classroom exercises, homework problems and examinations based on applying knowledge to solve analytical problems.
7. Understand the concepts of center of gravity, center of mass, and the centroid. Be able to calculate the center of gravity and centroid of shapes.	Demonstrate these principles in classroom exercises, homework problems and examinations based on applying knowledge to solve analytical problems.
8. Be able to conceptualize fluid pressure and calculate hydrostatic forces.	Demonstrate these principles in classroom exercises, homework problems and examinations based on applying knowledge to solve analytical problems.

6. Course Topics and Schedule:

7. Grading:

Homework	100 pts
Resume	10 pts
Report	50 pts
Midterm exams (3)	200 pts
Final Exam	100 pts
Total	460 pts

A > 94 %, A- > 90 %, B+ > 88 %, B > 84 %, B- > 80 %, C+ > 78 %, C > 74 %, C- > 70 %. D+ > 68 %, D > 64 %, D- > 60 %, F Less than 60% on total points available

8. ADA Statement:

Students who have special needs or disabilities that may affect their ability to access information and or material presented in this course are encouraged to contact me or Robert Harden, ADA Compliance Officer, Director, ADA Affairs and Students Assistance on campus at 963-2171 for additional disability related educational accommodations.

Prepared by Roger Beardsley June 23, 2009