ME2560        STATICS                    Summer I 2014
Course Outline

Instructor: Dr. Judah Ari-Gur, Room F-246
Tel.: (269) 276-3419, Fax: (269) 276-3421
E-mail: judah.ari-gur@wmich.edu
Webpage: http://homepages.wmich.edu/~arigurj/

Office hours: Tuesday 2-4 or by appointment


Catalog Description (revised):
Forces and moments acting upon structural bodies under static loads. Concepts of vectors, free-body diagrams, equilibrium, shear and moment diagrams, centroids, moments of inertia and friction.

Prerequisites: MATH 1230 or MATH 1710.

ME 2560 is a pre-engineering curriculum requirement for: aerospace engineering; civil engineering; construction engineering; mechanical engineering.
ME 2560 is a prerequisite to ME 2570 and ME 2580.

Objectives: The concepts of equilibrium and balance are universal. They extend into areas of life, far beyond engineering. The main objective of this course is to study the equilibrium of forces and moments acting upon static structures. Most of the applications will include loaded parts and assemblies of mechanical systems and simple structural components.

Topics: Extended review of vector algebra. (Ch. 2)
Force systems. Free-body diagrams. Equilibrium of forces. (Ch. 3)
Moment of a force. Couples. Resultants. (Ch. 4)
Rigid body equilibrium equations. Supports and reactions. (Ch. 5)
Trusses. Frames and machines. (Ch. 6)
Internal forces and moments. Force and moment diagrams. (Ch. 7)
Centroids. Mass centers. (Ch. 9)
Area moment of inertia. Mass moment of inertia. (Ch. 10)
Dry friction. (Ch. 8)

Grading: Quizzes (20%)
Midterm exams (3x15%) [19 May; 2 June; 11 June]
Final exam (35%) [Monday, 23 June, 10:30-12:30]

Practice problems will be assigned during the lectures. They will not be collected for grading. Quizzes may be given at any time during the lecture hours. One of
the earlier practice problems, but not from those assigned in the previous class meeting, slightly modified, will be given as a 15-minute quiz. Each midterm exam will be a 50-minute test. The final exam is a 2-hour test. In the quizzes, midterm exams and final exam the use of notes and textbook is not allowed. For problem solving, only simple calculators are allowed, as approved for the national Fundamentals of Engineering exams: http://ncees.org/exams/calculator-policy/ The use of other electronic devices, including laptops, mobile phones and any other device that may connect to the internet or store data files, is forbidden.

For Student Academic Conduct policies about cheating see: http://catalog.wmich.edu/content.php?catoid=20&navoid=778#stud_acad_cond

A=90%– ; BA=85%– ; B=80%– ; CB=75%– ; C=70%– ; DC=65%– ; D=60%– .

- Best learning is achieved by studying regularly, solving many problems, asking questions and discussing difficulties.
- Do not rely on solved examples. They may seem easy, while solving problems on your own may be difficult.
- Explore the applications of Statics around you to comprehend (and enjoy) the subject.
- Grades are not assigned by the course instructor. They are gained by the student and only recorded and calculated by the instructor.