

Middle Tennessee State University
Department of Engineering Technology and Industrial Studies

C O U R S E S Y L L A B U S

ET 3830 Statics

INSTRUCTOR : Dr. Saeed Foroudastan
OFFICE : VIS 241

Telephone: 898-5883
 Office Hours: As Posted
 Email: sforouda@mtsu.edu

LECTURE : Room: VIS 243

Day: MW F

Time: 9:10-10:00 PM

COURSE DESCRIPTION:

Statics. Three credits. Prerequisite: MATH 1910 . Fundamental concepts and conditions of static equilibrium; their application to systems of forces and couples acting on rigid bodies; and the calculation of centers of gravity; centroids, and moments of inertia.

PREREQUISITE BY TOPIC:

Algebra, Trigonometry, and elements of calculus.
 Basic concepts of physics.

COURSE OBJECTIVES:

1. To develop the ability of each student to analyze, set up, and solve by either scalar or vector (if appropriate) methods, problems on force systems; trusses; coplanar and space frames; centroids; moment of inertia; and friction.
2. To develop for each student the concept of the "free body diagram" and an appreciation for its importance in analysis.
3. To encourage each student in producing engineering calculations that are neat, orderly, and professional in appearance.

COURSE MATERIAL:

TEXTBOOK

REQUIRED: Engineering Mechanics, Statics, 9th ed., by R.C. Hibbler

OTHER REQUIREMENTS: A scientific calculator, Engineering paper

TOPICS:

Week 1	Introduction, General Principles
Week 2	Vector Algebra, Rectangular Components
Week 3	Position Vectors, Dot Product, Equilibrium of a Particle
Week 4	Free Body Diagrams

Week 5	Coplanar Force Systems, 3-D Force Systems
Week 6	Moment of Force, Force System Simplification
Week 7	Coplanar Force System, 3-D Vector Formulation
Week 8	Moment about an Axis, 3-D Moment Simplification
Week 9	Simple Distributed Loads, Free Body and Support
Week 10	Equations of Equilibrium
Week 11	3-D Equilibrium
Week 12	Simple Trusses, Method of Joint
Week 13	Method of Sections, Assignment of Bridge project
Week 14	Centroids and Center of Gravity
Week 15	Moments of Mass
Week 16	Friction

COMPUTER USAGE:

Students may utilize personal computers to write reports and solve problems.

LIBRARY USEAGE:

Students are encouraged to consult the library resources.

EVALUATION AND GRADING:

Weighting of Assignments:

Homework and Quiz	22%
Test #1	26%
Test #2	26%
Final Exam	<u>26%</u>
Total	100%

Final Exam: Monday, May 5th, 9:30 a.m. - 11:30 a.m.

Grading Scale:

0-59 **F**, 60-69 **D**, 70-79 **C**, 80-89 **B**, 90-100 **A**
+ & - grading system will not be used

Homework: Weekly homework assignments must be turned in by the beginning of class on the date due. No late homework will be accepted.

Pop Quizzes: Several unannounced pop quizzes will be given.

Grading of assigned work: Only one side of each page of assigned work will be graded. Nothing written on the question sheet will be graded. All numerical answers must have correct units to receive full credit.

Regrading: Requests for regrading of an assignment must be made by the end of the class period immediately following that of its return.

Retention of graded work: Graded assignments must be retained by the student until the final grades are posted.

POLICY ON MAKEUP WORK:

In general, no makeup exam or assignment will be given, unless the instructor is notified in advance of an absence. In case of emergencies, the instructor will decide whether to allow the student to make up the missed activity.

ATTENDANCE:

Is strongly recommended.

REASONABLE ACCOMMODATION FOR STUDENTS WITH DISABILITIES

If you have a disability that may require assistance or accommodation, or you have questions related to any accommodations for testing, note takers, readers, etc., please speak with me as soon as possible.

Students may also contact the Office of Disabled Students Services (898-2783) with questions about such services.

HOMEWORK FORMAT

Homework must conform to the following requirements. Failure to satisfy any of these will result in the lowering of your homework grade.

1. Homework must be done on the green or tan engineering paper. The three large title blocks at the top should contain respectively: the course number and section (e.g., ET 383-01, the date, and your name.
2. If you have more than one sheet, the sheets should be in order and stapled in the upper left-hand corner.
3. Each problem must have a brief statement of the "given" and "required" followed by the solutions.
4. Work must be done in pencil, not ink.
5. All significant-steps of the solution must be shown and in a neat orderly manner. An answer without supporting work will be worthless.
6. All problems must, where appropriate, be accompanied by a neat sketch. Generally, it is better to put the sketch on the right side of the page.
7. The final answer must be underscored with a double line. Also, on answers pay particular attention to signs and/or directions and units.
8. When more than one problem appears on the same sheet, the problems must be separated by a long horizontal line.
9. The problem number should appear at the upper right, preceding the given statement.
10. Homework is due at the beginning of the period each day. Late homework will not be graded. If you are unable to submit your homework on time due to sickness or the like, explain the reason to the instructor.
11. No work is to appear on the back of the page.

Spring 2003

Prepared By: _____

Date: _____