New Jersey Institute of Technology
Department of Engineering Technology
MET 235 Statics for Technology

COURSE NUMBER	MET 235
COURSE NAME	Statics for Technology
COURSE STRUCTURE	3-0-3 (lecture hr/wk - lab hr/wk – course credits)
COURSE COORDINATOR/ INSTRUCTOR	Dr. A Sengupta /See Department
COURSE DESCRIPTION	Provides an understanding of equilibrium of particles and rigid bodies subject to concentrated and distributed forces. Upon successful completion of this course, the students should be able to analyze problems involving the equilibrium of particles and rigid bodies, including simple machines, trusses, and frictional forces.
PREREQUISITE(S)	Phys 102 and Math 238
COREQUISITE(S)	None
REQUIRED, ELECTIVE OR SELECTED ELECTIVE	Required
REQUIRED MATERIALS	See Instructor Syllabus
COMPUTER USAGE	Microsoft Office
COURSE LEARNING OUTCOMES (CLO)	By the end of the course students should be able to: 1. Perform standard vector operations including addition, subtraction, Dot and Cross products 2. Resolve vectors into components along prescribed directions. 3. Perform equilibrium analysis of rigid bodies. 4. Determine equivalent systems of forces and couples. 5. Perform equilibrium and structural analysis of trusses and frames. 6. Determine centroids and moments of inertia of various areas. 7. Perform equilibrium analysis of impending motion including frictional forces.
CLASS TOPICS	Units, Fundamentals, Force Vectors, Unit Vectors, Equilibrium of a Particle, Forces in Space, Rectangular Components, Equilibrium Rigid Bodies, Equivalent Force Systems, Moments, Couple Systems, Equiv. Force-Couple Systems, Equilibrium of a Rigid Body, Distributed Forces, Trusses, Frames, Machines, Centroids, Center of Gravity, Moment of Inertia, Polar Moments of Inertia, Friction and Belt Friction

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STUDENT OUTCOMES

The Course Learning Outcomes support the achievement of the following MET Student Outcomes and TAC of ABET Criterion 9 requirements:

Student Outcome b - an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies;
Related CLO – 1 thru 7

GRADING POLICY

Homework and Class Participation	15 %
Tests (3 @ 18% ea.)	54 %
Final Exam	31 %

NOTE: GRADING POLICY MAY BE MODIFIED BY INSTRUCTOR FOR EACH SECTION IN THE COURSE)

There are three tests during the semester. The lowest grade will be dropped. However, if you achieve an A for all three tests, you will not be excused from the final. There will be no makeup tests – if you miss one test, then that is the test you will drop.

Homework is due at the end of the class period, one week after it is assigned. Late homework will be penalized one problem grade per week and not accepted after graded homework has been returned.

1. Homework must be submitted in sets, arranged in order as in course outline.
2. Homework must be written on quadrille 8½ x 11 engineering pad, one side only. Sets must be stapled together in the upper left hand corner.
3. Homework problems should done using the "Given and Find" format and all equations should be defined symbolically prior to calculating any values. DO NOT HAND IN class notes or scratch work.
4. Extra Credit homework problems are due as a separate group at the end of the semester and should not be mixed in with the regular homework assignments.

ACADEMIC INTEGRITY

NJIT has a zero-tolerance policy regarding cheating of any kind and student behavior that is disruptive to a learning environment. Any incidents will be immediately reported to the Dean of Students. In the cases the Honor Code violations are detected, the punishments range from a minimum of failure in the course plus disciplinary probation up to expulsion from NJIT with notations on students' permanent record. Avoid situations where honorable behavior could be misinterpreted. For more information on the honor code, go to

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http://www.njit.edu/academics/honorcode.php

STUDENT BEHAVIOR

See Individual Instructor Policies, which can include:

- No eating or drinking is allowed at the lectures, recitations, workshops, and laboratories.
- Cellular phones must be turned off during the class hours – if you are expecting an emergency call, leave it on vibrate.
- No headphones can be worn in class.
- Unless the professor allows the use during lecture, laptops should be closed during lecture.

MODIFICATION TO COURSE

The Course Outline may be modified at the discretion of the instructor or in the event of extenuating circumstances. Students will be notified in class of any changes to the Course outline.

MET 235 - COURSE OUTLINE

WEEK	TOPICS
1	Introduction: Units, Concepts, Fundamentals
2	Force Vectors, Unit Vectors, Equilibrium of a Particle
3	Forces in Space: Rectangular Components, Equilibrium
4	Rigid Bodies: Equivalent Force Systems, Moments
5	**Quiz 1 -** Couple Systems
6	Equiv. Force-Couple Systems
7	Equilibrium of a Rigid Body
8	Centroids and Center of Gravity

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WEEK	TOPICS
9	**Quiz 2 –** Distributed Forces
10	Structural Analysis: Trusses
11	Structural Analysis: Frames and Machines
12	Moment of Inertia and Polar Moments of Inertia
13	**Quiz 3** – Parallel Axis Theorem
14	Friction and Belt Friction
15	Final Exam