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. J. Sodhi / Prof. Ali Rohafza
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 or PHYS 111
COREQUISITE(S)	MATH 138 or MATH 111
REQUIRED, ELECTIVE OR SELECTED ELECTIVE	Required
REQUIRED MATERIALS	**Vector Mechanics for Engineers, 12th Ed.** by F.P. Beer, E.R. Johnston, Jr., and D.F. Mazurek, ISBN: 9781259977268
COMPUTER USAGE	Microsoft Office
COURSE LEARNING OUTCOMES (CO)	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

STUDENT OUTCOMES

The Course Outcomes support the achievement of the following MET Student Outcomes:

Student Outcome (1) - an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline;
Related CO – 1 thru 7

GRADING POLICY

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

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 beginning 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. Sets must be stapled together in the upper left hand corner.
2. Homework problems should be 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.

ACADEMIC INTEGRITY

"Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree to which you are working. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy which is found

at: http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf.

GENERATIVE AI	Student use of artificial intelligence (AI) is permitted in this course for certain assignments and activities. It is not permitted to be used in the assignments noted by the instructor, as doing so would undermine student learning and achievement of course learning outcomes. Additionally, if and when students use AI in this course, the AI must be cited as is shown within the NJIT Library AI citation page for AI. If you have any questions or concerns about AI technology use in this class, please reach out to your instructor prior to submitting any assignments.
STUDENT BEHAVIOR	• 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.
PREPARED BY	Prof. Ali Rohafza / Dr. J. Sodhi
COURSE COORDINATED BY	Dr. J. Sodhi

CLASS HOURS

Tuesdays & Fridays	8:30– 9:50 AM	CKB 341

OFFICE HOURS:

By Appointment ali.rohafza@njit.edu

NJIT Online Information

The instructor will discuss these requirements on the first day of the course and/or post on their Learning Management System (LMS). Please become familiar

- Canvas: https://canvas.njit.edu/
- Zoom: https://njit-edu.zoom.us/
- Online Proctoring: https://ist.njit.edu/online-course-exam-proctoring

Grading Legend

GRADE	NUMERIC RANGE
A	90 to 100
B+	85 to 89
B	80 to 84
C+	75 to 79
C	70 to 74
D	60 to 69
F	0 to 59

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MET 235 - COURSE OUTLINE

WEEK	DATES	TOPICS	SECTIONS	ASSIGNMENTS
1	9/2 9/5	Introduction: Units, Concepts, Fundamentals	1.1 thru 1.6	
2	9/9 9/12	Force Vectors, Unit Vectors, Equilibrium of a Particle	2.1 thru 2.3	2.1,4,5,6,8,23, 24,35,46
3	9/16 9/19	Forces in Space: Rectangular Components, Equilibrium	2.4 thru 2.5	2.70,107
4	9/23 9/26	Quiz 1 - Rigid Bodies: Equivalent Force Systems, Moments	3.1 thru 3.2	3.2,3,7,9,16,17,25
5	9/30 10/3	Couple Systems	3.3	3.71,73,74,97
6	10/7 10/10	Equiv. Force-Couple Systems	3.4	3.101,105,113
7	10/14 10/17	Equilibrium of a Rigid Body	4.1 thru 4.3	4.10,15,19,25,29, 33
8	10/21 10/24	Centroids and Center of Gravity Quiz 2	5.1 thru 5.2	5.1,3,6,7
9	10/28 10/31	Distributed Forces	5.3 and 5.4	5.66,68,70,71

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10	11/4 11/7	Structural Analysis: Trusses	6.1 thru 6.2	6.1,6,8,14,44,53
11	11/11 11/14	Structural Analysis: Frames and Machines	6.3 thru 6.4	6.79,82,85,140, 148
12	11/18 11/21	Quiz 3 - Moment of Inertia and Polar Moments of Inertia	9.1 thru 9.2	9.31,32,40,52
13	11/26 (Wed on Fri Schedule) 12/2	Moment of Inertia Polar Moments of Inertia	9.3 thru 9.6	9.71, 75,77
14	12/5 12/9	Friction and Belt Friction	8.1, 8.4	8.1,3,11
15	TBD	Final Exam		