New Jersey Institute of Technology
Department of Engineering Technology
MET 236 Dynamics for Technology

Course Number	MET 236
Course Name	Dynamics for Technology
Course Structure	2-0-2 (lecture hr/wk - lab hr/wk – course credits)
Course Coordinator/ Instructor	Dr. A. Sengupta/ Mina Botros
Course Description	Provides an understanding of the mathematics of the motion of particles and rigid bodies, and of the relation of forces and motion of particles. Upon successful completion of this course, the students should be able to describe the motion of particles and rigid bodies as functions of time and position, develop their equations of motions due to applied forces, and determine post impact behavior.
Prerequisite(s)	MET 235 or Mech 235 or Mech 235
Corequisite(s)	None
Required, Elective or Selected Elective	Required
Required Materials	**Vector Mechanics for Engineers: Dynamics, 12th Ed.** by F.P. Beer, E.R. Johnston, Jr. and P. J. Cornwell, McGraw-Hall, ISBN: 9781259977305
Computer Usage	None required.
Course Outcomes (CO)	By the end of the course students should be able to: 1. Describe the motion of particles and rigid bodies as functions of time and position 2. Develop their equations of motions due to applied forces 3. Determine post impact behavior
Class Topics	Kinematics of Particles: Rectilinear Motion, Curvilinear Motion, Kinetics of Particles: Newton's 2nd Law, Energy Methods, Momentum Methods, Systems of Particles, Kinematics of Rigid Bodies, Relative Motions, Plane Motion of Rigid Bodies Forces & Accelerations, Plane Motion of Rigid Bodies Systems & Constraints, Plane Motion of Rigid Bodies Energy Methods, Plane Motion of Rigid Bodies Momentum Methods, Vibrations

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

Student outcome l - technical expertise in dynamics, fluid mechanics, and thermodynamics
Related CLO – 1 thru 7

GENERAL GRADING POLICY

Homework, **C**lasswork (Quizzes) & **A**ttendance	**20 %**
2 Tests (2 @ 25 % ea.)	**50 %**
Final **E**xam "**All Chapters**"	**30 %**

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

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

Mina Botros

Course Coordinated by Dr. A. Sengupta

Class Hours

Thursday 6:00 PM – 7:55 PM FMH 404

Office Hours:

By Appointment: mns34@njit.edu

Notes

- **NO** Late Homework will be accepted
- Homework will be submitted one week before each test (3 homework submissions in total)
- **Regular attendance is required.**

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

- Webex: http://ist.njit.edu/webex
- Online Proctoring: https://ist.njit.edu/online-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

MET 236 - Course Outline

Week	Date	Topics	Reading-Assignment 11th Edition	Homework\Class work Assignment
1	1/19	Introduction to Kinematics and Kinetics	11.1 thru 11.2	11.20,22,23,34,36
2	1/26	Kinematics of Particles	11.3 thru 11.5	12.1,3,5,6,8
3	2/2	Kinetics of Particles	12.1 thru 12.2	12.10,12,25,17,18
4	2/9	Kinetics of Particles (Cont.)	12.3 **Homework 1 due**	---
5	2/16	**Test 1**		---
6	2/23	Kinetics of Particles: Energy Methods	13.1 – 13.3	13.2, 6,10,11,12,14,16
7	3/2	Impact	13.4	13.18,20,21,22,24
8	3/9	Kinematics of Rigid Bodies	15.1 thru 15.5	15.1,2,4,6,7, 10,11,13,14,16
NO CLASS 3/16 SPRING RECESS				
9	3/23	Kinematics of Rigid Bodies – Cont'd.	15.5 thru 15.7 **Homework 2 due**	---
10	3/30	**Test 2**		---
11	4/6	Planar Kinetics of a Rigid Body: Force and Acceleration	16.1 - 16.2	16.9 -13 20,21,23,34,35
12	4/13	Vibrations	19.1 thru 19.2	19.1,3,5,7,10
13	4/20	Vibrations (Cont.)	19.3 thru 19.4	19.12,13,15,17,19
14	4/27	Review	**Homework 3 due**	---
15		**FINAL EXAM**	**All Chapters**	---