

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 /See Department
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
COREQUISITE(S)	None
REQUIRED, ELECTIVE OR SELECTED ELECTIVE	Required
REQUIRED MATERIALS	See Instructor Syllabus
COMPUTER USAGE	None required.
<u>COURSE LEARNING OUTCOMES (CLO)</u>	By the end of the course students should be able to: <ol style="list-style-type: none">1. Describe the motion of particles and rigid bodies as functions of time and position2. Develop their equations of motions due to applied forces3. 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 1 - technical expertise in dynamics, fluid mechanics, and thermodynamics

Related CLO – 1 thru 7

GENERAL GRADING POLICY	Homework, 6-Quizzes, Classwork & Participation	25 %
	3 Tests (3 @ 15% ea.)	45 %
	Final Exam “All Chapters”	30 %

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

There are three tests during the semester. At the discretion of the instructor, the lowest grade may 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.

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

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 236 - COURSE OUTLINE

Week	Topics
1	Introduction to Kinematics and Kinetics
2	Kinematics of Particles <i>Quiz # 1</i>
3	Kinetics of Particles
4	Kinetics of Particles (Cont.) <i>Quiz # 2</i>
5	Kinetics of Particles: Energy Methods Test 1
6	Ch. 13 (Cont.)
7	Impact <i>Quiz # 3</i>
8	Kinematics of Rigid Bodies Test 2
9	Kinematics of Rigid Bodies <i>Quiz # 4</i>
10	Planar Kinetics of a Rigid Body: Force and Acceleration
11	Planar Kinetics of a Rigid Body: Force and Acceleration <i>Quiz # 5</i>
12	Vibrations Test 3
13	Vibrations (Cont.) <i>Quiz # 6</i>
14	Review
15	FINAL EXAM