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. J. Sodhi/ 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 234 or MECH 235, MATH 138 or MATH 111
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:

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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 (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 CLO – 1 thru 3**

GENERAL GRADING POLICY		
Homework, Classwork (Quizzes) & Attendance	**20 %**
2 Tests (2 @ 25 % ea.)	**50 %**
Final Exam "All Chapters"	**30 %**

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 that you are working on. 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 that is found at: NJIT Academic Integrity Code.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu."

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	Mina Botros / Dr. J. Sodhi
COURSE COORDINATED BY	Dr. J. Sodhi

CLASS HOURS

Monday   6:00 PM – 7:55 PM   CKB 310

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

- 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

MET 236 - Course Outline

Week	Date	Topics	Reading-Assignment 11th Edition	Homework\Class work Assignment
1	9/8	Introduction to Kinematics and Kinetics	11.1 thru 11.2	11.20,22,23,34,36
2	9/15	Kinematics of Particles	11.3 thru 11.5	12.1,3,5,6,8
3	9/22	Kinetics of Particles	12.1 thru 12.2	12.10,12,25,17,18
4	9/29	Kinetics of Particles (Cont.)	12.3 **Homework 1 due**	---
5	10/6	**Test 1**		---
6	10/13	Kinetics of Particles: Energy Methods	13.1 – 13.3	13.2, 6,10,11,12,14,16
7	10/20	Impact	13.4	13.18,20,21,22,24
8	10/27	Kinematics of Rigid Bodies	15.1 thru 15.5	15.1,2,4,6,7, 10,11,13,14,16
9	11/3	Kinematics of Rigid Bodies – Cont'd.	15.5 thru 15.7 **Homework 2 due**	---
10	11/10	**Test 2**		---
11	11/27	Planar Kinetics of a Rigid Body: Force and Acceleration	16.1 - 16.2	16.9 -13 20,21,23,34,35
12	11/24	Vibrations	19.1 thru 19.2	19.1,3,5,7,10
13	12/1	Vibrations (Cont.)	19.3 thru 19.4	19.12,13,15,17,19
14	12/8	Review	**Homework 3 due**	---
15	**TBD**	**FINAL EXAM**	**All Chapters**	---