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, 12 th Ed. by F.P. Beer, E.R. Johnston, Jr. and P. J. Cornwell, McGraw-Hall, ISBN: 9781259977305		
COMPUTER USAGE	None required.		
<u>C</u> ourse <u>O</u> utcomes	By the end of the course students should be able to:		
(CO)	 Describe the motion of particles and rigid bodies as functions of time and position Develop their equations of motions due to applied forces 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	Homework, Classwork (Quizzes) & Attendance	20 %	
POLICY	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: <u>NJIT Academic Integrity Code</u> . 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		
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 <u>NJIT Library AI citation page</u> 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, recitate and laboratories. Cellular phones must be turned off during the class how expecting an emergency call, leave it on vibrate. No headphones can be worn in class. 	lrinking is allowed at the lectures, recitations, workshops, es. es must be turned off during the class hours – if you are emergency call, leave it on vibrate. es 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			
Tuesday 6:00 PM –	7:55 PM CKB 320		

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

GRADING LEGEND

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

Week	Date	Topics	Reading-Assignment	Homework\Class work Assignment
1	Jan 21	Introduction to Kinematics and Kinetics	11.1 thru 11.2	11.20,22,23,34,36
2	Jan 28	Kinematics of Particles	11.3 thru 11.5	12.1,3,5,6,8
3	Feb 4	Kinetics of Particles	12.1 thru 12.2	12.10,12,25,17,18
4	Feb 11	Kinetics of Particles (Cont.)	12.3 Homework 1 due	
5	Feb 18	Test 1		
6	Feb 25	Kinetics of Particles: Energy Methods	13.1 – 13.3	13.2, 6,10,11,12,14,16
7	Mar 4	Impact	13.4	13.18,20,21,22,24
8	Mar 11	Kinematics of Rigid Bodies	15.1 thru 15.5	15.1,2,4,6,7, 10,11,13,14,16
9	Mar 25	Kinematics of Rigid Bodies – Cont'd.	15.5 thru 15.7 Homework 2 due	
10	Apr 1	Test 2		
11	Apr 8	Planar Kinetics of a Rigid Body: Force and Acceleration	16.1 - 16.2	16.9 -13 20,21,23,34,35
12	Apr 15	Vibrations	19.1 thru 19.2	19.1,3,5,7,10
13	Apr 22	Vibrations (Cont.)	19.3 thru 19.4	19.12,13,15,17,19
14	Apr 29	Review	Homework 3 due	
15		FINAL EXAM	All Chapters	

MET 236 - COURSE OUTLINE