SAN JOSÉ STATE UNIVERSITY Department of Mechanical Engineering

ME 101 Dynamics Fall 2018

Prerequisites CE 95 or CE 99 and Math 39 with a grade of Cor better in each)

Instructors and Meeting Rooms				
Section1 (41576)	TR 1330-1445	Room ENG 327: Prof. R. Agarwal, Office: E310 D		
Section2 (42875)	TR 15004615	RoomENG 327 Prof. R. Agarwal, Office: E310 D		
Section3 (42876)	MW 13301445	Room ENG 327 VV iswanathan		
Section 4 4 4459)	Room ENG 303R T	SOU		

Course Coordinator: Prof. R. Agarwal, E 310D, email: raghu.agarwal@sjsu.edu

Instructors Contact Information

Credit Units:

Prof. R. Agarwal, E 310D, emailraghu.agarwal@sjsu.edu

Prof. R. Tsou E348, email: rctsou123@gmail.com

3 units

Prof. V. Viswanathan, E 310A, email:vimal.viswanathan@sjsu.edu

Prof. P. Boylan-Ashraf, E 233I, email peggy.boylanashraf@sjsu.edu

Prof. K Youssefi, E348, emaikourosh.youssefi@sjsu.edu

Dr. Agarwal's Office hours: T Th 1630 to 1800 room B10D

(Check with your own instructor for the Office Hours if you are not in Dr. Agarwal's section)

COURSE DESCRIPTION: Vector Mechanics. Notion of particles and rigid bodies. Force, energyd momentum principles.

Required Text: Vector Mechanics for Engineers, 12th Edition,McGraw Hill Education, by Beer, Johnston, Cornwell, and Self

Grading Metrics:	Homework	10%
-	Midterms 1	15%
	Midterm 2	15%
	Preclass Assignment	15%
	30-minutes Concept Quizse(2)	5%
	Class Participation	5%
	Final Exam	35% (Comprehensive)

Grading Scale

95-100 A+, 9094 A, 8789 A-, 85-86 B+, 8084 B, 7779 B-, 75-76 C+,7074 C, 67-69 C-, 65-66 D+, 6064 D, 5759 D-, Below 57 F

Course Goals

- 1. To learn fundamental concepts and principles of patinderigid body motion
- 2. To learnfundamental concepts and principles of particle and rigid body kinetics
- 3. Application of Newton's second law to solve problems in particle and rigid body dynamics
- 4. Application of energy methods to solve problems in particle and rigid body dynamics.

5. In the context of B.S. Mechanical Engineering program assessment, this course is intended to help students achieve ABET Student Outcome 3a: "an ability to apply knowledge of mathematics, science, and engineering." For more information on ABET Student Outcomes, please see<u>http://www.abet.org/eacriteria-2016/2017/</u>

Student Learning Objectives

Upon successful completion of this course, the student should be able to:

- 1. Distinguish kinematics and kinetics in dynamics of solids
- 2. Develop analytical models for a given dynamic situation using particle and rigid body dynamics theories.
- 3. Characterize a motion to be rectilinear, curvilinear, planar rigid body dynamics.
- 4. Describe the motion of a particle in terms of kinematics for general curvilinear motion as well as in moving reference frames.
- 5. Apply Newton's Second Law in solving particle and rigid body dynamics problems.
- 6. Apply principle of energy and momentum rinciples in solving problems involving Particles; application of energy method for D2 rigid bodies in motion.

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Course Schedule Fall 2018

(The weekly schedule is tentative and subject to change)

Homework will be assigned through the McGraw Hill Connectwebsite. Access code must be purchased to use the website.

Lectures:	Topic	Homework
Week of		Assignment
August 20	Chapter 11.1: Rectilinear Motion of Particles	
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August 27	Chapter 11.2: Uniformly Accelerated Motion	
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Sept 3	Chapter 11.3: Graphical Method	
Sep3: NC		
Sept 10	Chapter 11.4: Curvilinear MotionMotion of Projectiles	
	Chapter 11.5: Tangential and Normal Coordinates	

Sept 17

IMPORTANT NOTE: The Final Exam is common to all the sections and is scheduled for December 19, 2018

Important Dates: August 21: First Day of Instructions September 3: abor Day, campus closed September 0: Last day to add a course November 12: Veteran Day, campulesed November 2223: Thanksgiving Holiday – Campus closed December 10: Last day of instructions December 19: Final Exam

NOTE 1: In addition to the midterms and final exam, there would be adding quizzes

NOTE 2: The final exam is common to all sections and will be given on the Final Examulatery: December 19, 2018.

NOTE 3: Extra Help: There are four workshops scheduled to help you learn the fundamental concepts of dynamics and help you with your homogeneric assignments you can attend any one of the rear workshops, and also, get help on one with the tutors by making an appointment.

NOTE 4: You must satisfy the prequisites listed above. Submit a hardcopy of the courses that satisfy the requirement. Make sure to highlight the courses.