Department of Mechanical Engineering University of California – Berkeley ME104 Engineering Mechanics II Spring 2022 Revised Feb. 14, 2022

Course Instructor	Noel Perkins, <u>nperkins@berkeley.edu</u>		
	Office hours and office: MW 12-1:30 (via Zoom to start the term)		
Graduate Student Instructors	s Theresa Honein, <u>theresa_honein@berkeley.edu</u>		
	Office hours and office: T 3:30-5; Th 12:30-2		
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	Arthur Guivarch, <u>arthur_guivarch@berkeley.edu</u>		
	Office hours and office: Th 4-5:30		
Contacting Instructors	We welcome all questions and we suggest that you message us by email. You may		
Contacting instructors	message your section instructor or the course instructor per your discretion.		
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Class Meetings Lectures: MWF 11am-12 pm, North Gate 105 (via Zoom to start the			
	Discussion Section 101: T 1-2, Hearst Mining 310 (via Zoom to start the term)		
	Discussion Section 102: T 2-3, Etcheverry 3110 (via Zoom to start the term)		
	Discussion Section 103: F 10-11, Etcheverry 3113 (via Zoom to start the term)		
	Discussion Section 105.1 10-11, Leneverty 5115 (via Zoom to start the term)		
Course Website	on bcourses/canvas: http://bcourses.berkeley.edu		
Prerequisite	MEC 85 Introduction to Solid Mechanics		
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Recommended Textbook	nmended Textbook Engineering Mechanics: Dynamics, Meriam and Kraige		
	Any edition of the book is suitable and recommended, but not essential.		

Expectations

You should expect that I provide the clearest possible lectures, and that I address your learning needs using a variety of methods. I endeavor to make lectures engaging and to include many active learning exercises for you to complete. These exercises are critical to your learning. Consequently, I expect that you will not only attend each lecture (both online and in person), but that you will offer ample questions and discussion for the benefit of all. Importantly, all members of our course are expected to contribute to a respectful, welcoming and inclusive learning environment, and I am dedicated to achieving that goal. If I accidentally use language that creates offense or discomfort, please contact me so that I can avoid making the same mistake again.

Course Overview

In this course, you will learn how to model and analyze the motion of particles (in three dimensions) and rigid bodies (in two dimensions). You will also see how models of particles and rigid bodies may represent engineered systems and devices and learn the methods to predict their performance for use in engineering design. The topics include the kinematics and kinetics of particles and rigid bodies (planar) with significant emphasis on vector mechanics for describing kinematical variables and the resulting equations of motion.

Homework Assignments

Completing homework problems are essential parts of this course and they represent critical opportunities to learn the material. These will be due by 5pm PST on the days noted in the attached schedule and they should be submitted via Gradescope which is accessible through the course's Canvas page. All homework will be counted towards your grade and late assignments will not be accepted without advance notice of extenuating circumstances. Assignments and solutions will be posted on our course website.

All homework assignments are to be completed on your own. You are welcome to consult with other students and the instructors during the conceptualization of a homework problem but all written work, whether in scrap or final form, is to be generated by you. You are also not allowed to possess, look at, use, or in any way derive advantage from the existence of solutions, whether these solutions were former students' work product or copies of solutions that had been made available by any instructor, publisher or website.

Examinations

There will be two in-class midterm examinations on 2/28 and 4/18 and one final examination on 5/10 as also listed on the attached course outline. Please mark these dates in your calendar now as no make-up exams will be given except in cases of documented emergency.

Grading

Historically, the average grade in ME104 is 3.1/4.0 (i.e., close to a B). This term your grade will be calculated using the following percentages:

81	
Homework	15%
First Examination	20%
Second Examination	20%
Final Examination	45%

DSP

If you participate in the DSP program, kindly send documentation to Dr. Perkins within the first two weeks of the term (by Jan. 31) so that we can plan for your accommodation.

Date Topic Parallel Textbook Reading* Homework 1/19 Review Syllabus, Particle Kinematics 21, 22. Homework 1/21 Particle Kinematics 24, 22, 23, 24 Hw. 1 Assigned 1/24 Particle Kinematics 24 Hw. 1 Due, Hw. 2 Assigned 1/25 Particle Kinematics 27 Hw. 1 Due, Hw. 2 Assigned 1/21 Particle Kinematics 27 Particle Kinetics: Newton's Law 34, 35. 270 Particle Kinetics: Newton's Law 34, 35. Hw. 3 Due, Hw. 4 Assigned 271 Particle Kinetics: Newton's Law 35. Hw. 3 Due, Hw. 4 Assigned 271 Particle Kinetics: Newton's Law 35. Hw. 3 Due, Hw. 4 Assigned 271 Particle Kinetics: Work/Energy 36. Hw. 4 Due, Hw. 5 Assigned 271 Particle Kinetics: Work/Energy 37. Hw. 5 Due, Hw. 6 Assigned 272 Particle Kinetics: Work/Energy 37. Hw. 5 Due, Hw. 6 Assigned 273 Particle Kinetics: Topulas/Momentum 37. Hw. 5 Due, Hw. 6 Assigned 274 Particle Kinetics: Topulas/Momentum <	_		Course Schedule			
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4/29 Rigid Body Kinetics: Impulse/Momentum

- 5/2-5/6 Review Sessions for Final Exam
- 5/10 Final Examination 7-10 PM
- (*) These sections to read refer to 7th edition of Meriam and Kriage

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