

**Syllabus**  
**ENGR 251 Dynamics (Online Section)**  
**Spring 2010**

**Instructor:** Pam Ridgely

**Contact Info:** email [PamRidgely@gmail.com](mailto:PamRidgely@gmail.com) (you may also use Bb email, but gmail is preferred), or **Gmail chat** at the same address (works with your my.cuesta.edu email) any time.

**Office Hours:** Tu/Th 5-5:30pm (except test days) in 4118, online through Blackboard 7-7:30pm every Wednesday, 7-8pm Monday before each test and by appointment.

**Class Information:** <http://academic.cuesta.edu/pridgely/> or from Blackboard

**Classroom Medium:** Blackboard <http://blackboard.cuesta.edu/> Check homepage twice a week for announcements.

**Course Description:** Analyzes the dynamics associated with motion of rigid bodies and particles, including velocity, acceleration, relative motion, energy, work, momentum, and impulse. Utilizes vector mathematics. Includes 3-D.

**Prerequisite:** Engineering 250, Statics. See <http://em-ntserver.unl.edu/NEGAHBAN/EM373/math.htm> for the math you need to know for this class

**Transferability:** CSU; UC.

**Textbook:** Engineering Mechanics: Dynamics & Study PK & Mastering Package, 12th Ed., Hibbeler.  
Make sure to get the one with the Mastering Engineering package (ISBN: 0-13-701630-1)  
Optional lecture notes available on Blackboard.

<b>Grading:</b>	Final exam 25%	$\geq 90\%$	A
	4 Tests at 12.5% each	80-89.9%	B
	Weekly assignments 10%	70-79.9%	C
	Homework 10%	60-69.9%	D
	Online Quizzes + participation totaling 5%	0-59.9%	F

**Final Exam:** Tuesday May 18, 4:30-6:30pm in 4118 (comprehensive) Grades  $\leq 3\%$  of end of scale are +/-

**Test/Assignment/Homework Format:** Each problem must:

- be done with pencil on the provided/printed paper or one-sided 8.5"x11" paper (Engineering paper preferred).
- be in sequence, preferably on its own page. Make a note if the problem is continued elsewhere.
- be neatly organized and easily readable.
- define the coordinate system(s) used and contain all applicable diagrams.
- state any basic equations used before variables are substituted.
- state any assumptions made and justify them.
- use 3 significant digits for final answers, which must be boxed and have correct units.
- be self-explanatory. Explicitly explain anything that might be unclear.

**Lectures:** Online lectures will be made available through the class Blackboard site. You may also attend lectures for the in-class section of the class on Tu, Th 5:30-6:50pm (**not** 5:40pm) in 4118.

**Tests:** Tests are **4:30pm-5:30pm** or **5:40pm-6:40pm** on scheduled dates in 4118. No makeup will be permitted. Calculators may be used. All work must be shown in order to receive credit and adhere to the format stated above. Tests are closed book and notes. A one-sided (two-sided for the final) handwritten equation sheet is allowed for each test. It must not contain any specific example or problem (not even a partial problem or just the diagram.) Pick up the graded test during office hours or bring a SASE to the test if you want it returned before the next test.

**Weekly Assignments:** given on Blackboard and submitted either in class or on Bb. Solutions will be posted on Bb at 11:55pm on the same day. As a result, late assignments cannot be accepted after this time.

**Homework:** given and graded online through MasteringEngineering.com, plus hardcopies submitted at each test. Use access code from text package to register into course ID **MERIDGELY54651** and your myCuesta ID as your student ID.

**Online Quizzes:** also given and graded through MasteringEngineering. They are typically 10-20 minutes long and available from Sunday noon to Tuesday 5pm each week. You must complete your quiz during this window.

**Participation:** Non-participation of over one week may result in automatic drop from the class.

**Discussion Board:** on Bb is where you can form study groups, ask and answer questions about HW, assignments, or anything class-related. Use it to get help and to help others. Some additional help/hint/information may also be posted there. Your participation on the discussion board will be part of your grade along with other forms of participation.

**24/7 Distance Education Help Desk:** for technical issues related to DE or Blackboard. Phone (866)847-3251 or <http://d2.parature.com/ics/support/default.asp?deptID=4186> For Bb account issues email: [support@my.cuesta.edu](mailto:support@my.cuesta.edu)

**Student Code of Conduct:** You are expected to abide by the information contained in the Cuesta College Catalog and by the Student Code of Conduct or disciplinary action will be taken. You may discuss assignments and homework (excluding sharing HW answers) with each other but you must write up your submissions on your own and include the names of all people with whom you've collaborated in your submissions. You may not discuss the online quizzes with anyone until after the due date.

**ENGR 251 Dynamics**  
 Spring 2010  
**Tentative Calendar (subject to change)**

Week	Date	Topic (Online Lecture Number)	Reading
1	01-19	Introduction to Dynamics (11-1), Kinematics of particles in rectilinear motion (11-2, 11-2E)	Appendix A-C, 12.1-3
	01-21	Kinematics of particle system (11-3, 11-3E), Curvilinear motion in rectangular coordinates (11-4, 11-4E)	12.4-6, 12.9-10
2	01-26	Curvilinear motion in other coordinates (11-5, 11-5E, 11-5E2)	12.7-8
	01-28	Kinetics of particle: FMA method (12-1, 12-1E, 12-1E2, 12-1E3)	13.1-5
3	02-02	FMA in cylindrical coordinates, Angular momentum (12-2, 12-2E, 12-2E2)	13.6, 15.5-6
	02-04	Work, Kinetic Energy, and power (13-1, 13-2, 13-2E, 13-2E2)	14.1-4
4	02-09	<b>Test 1(11-12)</b>	<b>(Ch 12-13)</b>
	02-11	Potential energy (13-3, 13-3E)	14.5-6
5	02-16	Impulse and momentum(13-4, 13-4E, 13-4E2)	15.1-2
	02-18	Impact (13-5, 13-6, 13-6E, 13-7, 13-7E, 13-7E2)	15.3-4
6	02-23	Particle systems Kinetics, Angular momentum (14-1, 14-1E, 14-2, 14-2E, 14-2E2)	14.3, 15.3, 15.5-7
	02-25	Rigid body translation and rotation (15-1, 15-2)	16.1-3
7	03-02	<b>Test 2(13-14)</b>	<b>(Ch 14-15)</b>
	03-04	Relative velocity (15-3, 15-3E, 15-3E2)	16.5
8	03-09	Instant center (15-4, 15-4E, 15-4E2)	16.6
	03-11	Relative acceleration (15-5, 15-5E, 15-5E2, 15-5E3)	16.7, 16.4
9	03-16	Rotating reference frame (15-6, 15-6C)	16.8
	03-18	Rotating reference frame (15-6E, 15-6E2)	
10	03-23	Mass moment of inertia (16-1, 16-2, 16-2E)	17.1
	03-25	FMA in rigid bodies (16-3, 16-3E, 16-3E2, 16-3E3)	17.2-5
11	03-30	<b>Test 3(15.1-15.11)</b>	<b>(Ch 16)</b>
	04-01	Constrained plane motion (16-4, 16-4E, 16-4E2, 16-4E3, 16-4E4)	
12	04-06	<i>No Class – Spring Break</i>	
	04-08	<i>No Class – Spring Break</i>	
13	04-13	Work and Energy in rigid bodies (17- 1, 17-1E, 17-1E2)	18.1-5
	04-15	Work and energy in rigid bodies (17-1E3, 17-1E4)	
14	04-20	Impulse and Momentum in rigid bodies (17-2, 17-2E, 17-2E2, 17-2E3, 17-2E4)	19.1-3
	04-22	Rigid bodies impact (17-3, 17-3E)	19.4
15	04-27	<b>Test 4(16-17.10)</b>	<b>(Ch 17-19.3)</b>
	04-29	Impact (17-3E2, 17-3E3)	
16	05-04	3-D kinematics (15-7, 15-7E, 15-7E2)	20.1-4
	05-06	3-D kinetics (18-1, 18-1E, 18-2, 18-2E)	21.1-3
17	05-11	3-D kinetics FMA (18-3)	21.4
	05-13	Review	
18	05-18	<b>Final Exam (comprehensive) 4:30-6:30pm</b>	

- Notes:** (1) Weekly **assignments** are due at beginning of class or on Blackboard every **Thursday at 5:30pm**, except during spring break.
- (2) **Homework** due on MasteringEngineering ( <http://www.MasteringEngineering.com>) most **Mondays and Wednesdays 5pm** (see Mastering site for individual due dates). In addition, hard copies of all homework must be submitted at the beginning of each test/final.
- (3) Online **quizzes** (timed, 10-20 minutes) once/week, available Sun noon-**Tues 5pm** on MasteringEngineering.