

MEEG 2013 Dynamics

2013-001 (1188) MWF (11:50 a.m. - 12:40 p.m.) BELL 2282 , Spring 2018

Text: *Engineering Mechanics: Dynamics, Second Edition*, I. C. Jong, GRL, 2016

<u>Date</u>	<u>Day</u>	<u>Mtg. #</u>	<u>Topics</u>	<u>Problems</u>
1/17	W	1	Rectilinear motion	9.8, 15, 21
19	F	2	Dependent rectilinear motion	9.29, 32, 34
22	M	3	Graphical solution	9.40, 42, 46
24	W	4	Curvilinear motion	9.54, 58, 64
26	F★	5✍	Review, Hw, & Quiz	
29	M	6	Curvilinear motion	9.69, 76, 90
31	W	7	Force and acceleration (particles)	10.1, 9, 20
2/2	F★	8✍	Review, Hw, & Quiz	
5	M	9	Equations of motion (particles)	10.35, 37, 44
7	W	10	Central-force motion	10.59, 61, 62
9	F★	11✍	Review, Hw, & Quiz	
12	M	12	Trajectory of spacecraft	10.63, 64, 69
14	W	13	Trajectory of spacecraft	10.70, 72, 85
16	F★	14	Review, Hw, & Problem 4 of Test I	
19	M	15	Test I (Chaps.9--10), 5:00 p.m. – 7:00 p.m., in BELL 2282	
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21	W	16	Work and energy (particles)	11.13, 21, 31
23	F	17	Potential energy, consrvtn of energy	11.37, 42, 47
26	M	18	Conservation of energy, virtual work	11.51, 57, 60
28	W★	19✍	Review, Hw, & Quiz	
3/2	F	20	Impulse and momentum (particles)	11.66, 78, 82
5	M	21	Central-force motion	11.96, 98, 102
7	W	22	Impact, generalized virtual work	11.111, 115, 124
9	F★	23✍	Review, Hw, & Quiz	
12	M	24	Plane motion of rigid bodies	12.4, 7, 8
14	W	25	Accelerations, acceleration center	12.39, 58, 70
16	F	26	Parametric method	12.72, 74
26	M★	27	Review, Hw, & Problem 4 of Test II	
28	W	28	Test II (Chaps.11--12), 5:00 p.m. – 7:00 p.m., in BELL 2282	
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30	F	29	Mass moments of inertia	13.5, 7, 17
4/2	M	30	Force and acceleration (rigid bodies)	13.51, 57, 68
4	W	31	Constrained general plane motion	13.84, 91
6	F	32	Constrained general plane motion	13.98, 105
9	M★	33✍	Review, Hw, & Quiz	
11	W	34	Work and energy (rigid bodies)	14.4, 8, 14
13	F	35	Conservation of energy	14.38, 46, 50
16	M	36	Work and energy, virtual work	14.60, 69, 70
18	W★	37✍	Review, Hw, & Quiz	
20	F	38	Impulse and momentum (rigid bodies)	14.77, 88, 95
23	M	39	Impulsive motion	14.103, 108, 119
25	W	40	Generalized virtual work	14.127, 167, 169
27	F★	41	Review, Hw, & Problem 4 of Test III	
30	M	42	Test III (Chaps.13--14), 5:00 p.m. – 7:00 p.m., in BELL 2282	
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5/2	W	43	General Review	
9	W	44 tbd	Final Exam (12:45 p.m. – 2:45 p.m.)	

★ During the early part of this class meeting, a **homework** will be collected.

✍ A 20-25-min **quiz** will be given on the topics already covered in previous meetings.

Sample quizzes, sample tests, class notes, paper, software, and others are available on the

ICJ Home Page at: <http://comp.uark.edu/~icjong/>.

About the Course

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Instructor: Ing-Chang Jong, Ph.D., P.E. Office: MEEG 204E Phone: (479) 575-4350
Professor of Mechanical Engineering E-mail: icjong@uark.edu

TA: (a) *Guillain Rurangwa*, (b) *Abby Bishop*

Drill Tutor: *Abby Bishop*

Drill Sessions:

Tuesdays: 6:00 p.m. – 8:00 p.m., BELL 2269

Thursdays: 6:00 p.m. – 8:00 p.m., BELL 2267

Supplies: Calculator, engineering paper, mechanical pencil, eraser, *transparent* 6-in. plastic ruler, and compass or template for drawing circles.

Homework, Quizzes, Tests, and Grades

Dynamics is a course aimed at developing in students the concepts and skills related to the analysis and prediction of conditions of bodies under the action of unbalanced force systems. The evaluation of your performance and achievement in this course will be based on the following: **10** collections of *homework* (each worth 5 points), **7** *quizzes* (each worth 10 points), **3** *tests* (each worth 100 points), **n** *pop quizzes* (each worth 5 points), and **a** *final exam* (worth 100 points). The total maximum score you can possibly earn in this course is, therefore, **520 + 5n** points. You are required to have a **student ID** when you take the **three scheduled tests** and the **final exam**. (A rule: failure to have the required ID or failure to observe the seating assignments during scheduled tests, –5 points.) Full credit makeups for any of the scheduled events are to be approved in advance by the instructor; otherwise, the approval may require a proof of emergency.

Scheduled tests. Each of the three scheduled tests (Test I, Test II, & Test III) will contain the following:

- **Problems 1 & 2:** These are similar to the homework or example problems. To receive full credit, your solutions need to include pertinent sketches or diagrams, setup of equations, intermediate steps in the solutions, and final answers with appropriate number of significant digits as well as correct units. (60 points)
- **Problem 3:** Multiple-choice questions with *different* numbers are given to students. Grading is based on the correct choices you *circled* on the test sheet. (20 points, *no partial credit*)
- **Problem 4:** Non-numerical problem, covering descriptions of terms, laws, and principles, or derivations of formulas; given in the meeting preceding the test (20 points)
- **Contingent bonus points:** To be explained in class.

Grades. Except involvement in academic dishonesty or an unusual case (e.g., *lack of civility* or *breach of decorum* in class), your final grade will be at least *A*, *B*, *C*, and *D* if your final overall average score in this course is at least 91%, 81%, 71%, and 61%, respectively. Nevertheless, a grading curve in favor of the class may be employed at the discretion of the instructor.

Advice

- Silence your *cell phone* during class meetings.
- Review and study the various items (e.g., syllabus, guides, class notes, sample quizzes, sample tests, computer software, papers, etc.) that have been posted online. Ask your questions in class, complete the homework after class, and attend *Drill Sessions* to get additional needed help from the Drill Tutor.
- The best time to get needed help from the instructor is during **12:30 p.m. – 1:30 p.m.** on **Tuesdays** and **Thursdays** in his office, unless he has other meetings during the indicated time.
- Normally, a student needs to reserve *6 hours per week* (about twice the class time) *outside the class* for the reading, doing homework, and getting needed help.