ME230 Winter 2014

Kinematics and Dynamics

Instruction Team:

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TA:
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Schedule:
Lecture: MWF 12.30-1:20 PM EEB 105

Text:
Engineering Mechanics: Dynamics, R.C. Hibbeler, Thirteenth edition, Pearson (Prentice Hall), © 2013

Supplemental reading materials and assignment solution are available:
http://courses.washington.edu/engr100/me230

Grading:
Assignments – 20%, Due on Wednesday in Class
Two midterms – 50% (25% each)
Final Exam or Project – 30%

Schedule is a guideline and is subject to change throughout the quarter.

	Monday	Wednesday	Friday
January	**6** Lecture:Rectilinear kinematics:Continuous motion Reading: 12.1-12.2	**8** Lecture1:Rectilinear kinematics: Erratic motion Reading: 12.3	**10** Lecture 2: Curvilinear motion: Rectangular components, Motion of a projectile Reading: 12.4-12.6
	13 Lecture 3: Curvilinear motion: Normal & tangential components and cylindrical components Reading: 12.7-12.8	**15** Lecture 4: Absolute dependent motion analysis of two particles, Relative motion Reading: 12.9-12.10	**17** Lecture 5: Newton's laws of motion, equation of motion Reading: 13.1-13.3
	20 **HOLIDAY**	**22** Lecture 6: Equations of motion: Rectangular coordinate system, n-t coordinates Reading: 13.4-13.5	**24** Lecture 7: Equations of motion: Equations of motion: Cylindrical coordinates Reading: 13.6
	27 Lecture 8: Work and Energy, Reading: 14.1-14.3	**29** Lecture 9: Power and Efficiency, Conservation of Forces and Reading: 14.4-14.6	**31** 1st Midterm
February	**3** Lecture10: Impulse and Momentum Reading: 15.1-15.3	**5** Lecture11: Impact Reading: 15.4	**7** Lecture12: Angular momentum, relation between moment of a force and angular momentum, angular impulse and momentum principles Reading: 15.5-15.7
	10 Lecture13: Planar kinematics of a rigid body: Rigid body motion, Translation, Rotation about a fixed axis Reading: 16.1-16.3	**12** Lecture14: Planar kinematics of a rigid body: Absolute motion analysis, Relative motion analysis: Velocity, Instantaneous center of zero velocity, Relative motion analysis: Acceleration Reading: 16.4-16.7	**14** Lecture 15: Planar kinetics of a rigid body: Moment of Inertia Reading: 17.1
	17 **Holiday**	**19** Lecture16: Planar kinetics of a rigid body: Planar kinetic equations of motion, Equations of motion: translation Reading: 17.2-17.3	**21** Lecture 17: Planar kinetics of a rigid body: Planar kinetic equations of motion, Equations of motion: translation Reading: 17.2-17.3
	24 Lecture 18: Planar kinetics of a rigid body: Equations of Motion: Rotation about a Fixed Axis Equations of Motion: General Plane Motion Reading: 17.4-17.5	**26** Lecture 19: Planar kinetics of a rigid body: Kinetic energy, Work of a force, Work of a couple, Principle of work and energy Reading: 18.1-18.4	**28** 2nd Midterm
March	**3** Lecture 20: Work and Energy Reading: 18.5	**5** Lecture 21: Linear and angular momentum, Principle of impulse and momentum, Conservation of momentum Reading: 19.1-19.3	**7** **Lecture 21: Linear and** angular momentum, Principle of impulse and momentum, Conservation of momentum Reading: 19.1-19.3
	10 Review and Final project	**12** Review and Final project	**14** Review and Final project

Final project is due on Fri. March 21 5PM ME main office!!!

General Policy

Homework: Homework will be assigned in class. Homework for each week is due the following Wednesday **(During Class).** The homework has usually 10-12 problems per week. Late homework will not be accepted (partial credit will not be given). Homework solution will be available every **Wednesday** on the web. Please write down your **section number** on your homework.

Grading of Homework:
Only one or two questions (chosen by the instructor) from the homework (assigned for each week) will be graded – the resulting grade will constitute the grade for that week's homework. Therefore, answer all the questions correctly to get full credit for the homework.

Exams: Exams will be open book and open notes. There will be no alternate exams if you miss any. Exams will include materials covered in the text, class, and homework.

Final Exam or Project:

Grading Policy: Homework (20%), Two Midterms (25% each), and a Final (30%).
GPA Formula: GPA = (Score-50)/40*(4.0-2.0)+2.0 (94=4.0 and 50=2.0.)

Lectures and Recitations

Regular Lectures: MWF 12:30 - 1:20 (EEB 105).
Recitations:
Section AA 8:30-10:20 (MEB 242)
Section AB 10:30-12:20 (DEN 209)
Section AC 12:30-2:20 (LOW 205)
Section AD 2:30-4:20 (MEB 103)

First hour of recitation will be lectures by TA or small group collaborative learning. The second hour will be explanation of the homework problems to be due next day.