

## MEC E 250 Lec B1 : Engineering Mechanics II Winter Term 2013/2014 (January-April 2014)

**Lecture:** MWF 8:00-8:50am. **Place:** MEC 2-3. **Seminar (by TA):** Tuesday 4:00-4:50pm. MEC 4-3.

**Instructor:** Dr. Rong Long (MEC 5-8R. Tel: 780-492-6534, [rlong2@ualberta.ca](mailto:rlong2@ualberta.ca))  
Office Hours: Friday 9:00-11:00am.

**TA:** Tamran Lengyel (MEC 4-31, [tamran@ualberta.ca](mailto:tamran@ualberta.ca))

**Textbook:** “*Engineering Mechanics: Dynamics*” by Hibbeler, RC, Prentice Hall, **13<sup>th</sup> Edition**.

**Objectives of the course:** this course covers basic concepts and analysis methods for planar kinematics and kinetics of a rigid body and related subjects on work and energy, impulse and momentum, plus vibration of simple mechanical systems and planar rigid bodies.

**Calendar description:** Moments of inertia. Kinematics and kinetics of rigid body motion, energy and momentum methods, impact, mechanical vibrations.

Lecture dates & Topic	Sections	Assignment Questions (Text, 13E) & Due Day
<b>Jan. 6, 8:</b> Review of Kinematics and Kinetics of Particles	Review 1	Assign.1: R1-2, 9, 21, 26, 44, 48 <b>Jan.15</b> <b>Assignments must be handed in to the assignment box on 4<sup>th</sup> floor of Mechanical Engineering building before 4:00pm on the due day. No late assignment accepted!</b>
<b>Jan.10, 13, 15:</b> Planar Kinematics	16.1-3; 16.4	Assign.2: 16-4, 13, 21, 42, 47, 53. <b>Jan.22</b>
<b>Jan. 17, 20, 22:</b> Planar Kinematics <b>Jan. 24, 27, 29:</b> Planar Kinematics	16.5, 16.6; 16.7	Assign.3: 16-62, 63, 72, 82, 90, 94. <b>Jan.29</b> Assign.4: 16-103, 110, 111, 119, 125. <b>Feb.5</b>
<b>Jan.31, Feb.3, 5:</b> Planar Kinematics <b>Feb.7:</b> Moment of Inertia	16.8; 17.1	Assign.5: 16-129, 133, 135, 138, 149. <b>Feb.12</b>
<b>Feb.10, 12, 24:</b> Planar Kinetics <b>Feb. 14:</b> Review for Midterm <b>Reading week Feb.17-21</b>	17.2, 17.3	Assign.6: 17-14, 16, 27, 34, 43, 55. <b>March 5</b> <b>No assignment in reading week and midterm week</b>
<b>Feb. 26, 28, March 3:</b> Planar Kinetics <b>Midterm: Feb.28 (Friday)</b> <b>19:00-20:30 (Room to be assigned)</b>	17.4, 17.5	Assign.7: 17-70,71,87,95,103,118 <b>March 12</b>
<b>March 5, 7, 10:</b> Work & Energy <b>March 12, 14:</b> Work & Energy	18.1-4; 18.5	Assign.8: 18-3,9,11,19,29,34 <b>March 19</b> Assign.9: 18-42,44,51,56,66 <b>March 26</b>
<b>March 17, 19, 21;</b> <b>March 24, 26, 28, 31:</b> Impulse and Momentum	19.1; 19.2 19.3; 19.4	Assign.10: 19-7,11,13,22,23,25 <b>April 2</b> Assign.11: 19-33,37,47,50,53 <b>April 9</b>
<b>April 2, 4, 7:</b> Vibration <b>April 9 (last day of class):</b> Review	22.1-2;22.3-5	Assign.12: 22-11,17,28,31,33,37 <b>April 16</b>
<b>Final Exam :</b> <b>Room (TBA)</b> <b>April 28 (Monday), 9:00-11:30</b>		Good Luck!

**Prerequisites:** ENGG 130, EN PH 131 and MATH 101.

**Grading:** **Assignments (best 10/12) 10%, Seminar quizzes 10%, Midterm 30%, Final 50%.**

**Exams:** Textbook, a self-prepared formula-sheet, approved non-programmable calculators allowed.

**Note:** Solutions for assignments available in eClass after the due day.

**Calculator Policy:** only approved, non-programmable calculators allowed in all exams.

### **Plagiarism, Cheating, Misrepresentation of Facts and Participation in an Offence**

Plagiarism, cheating, misrepresentation of facts and participation in an offence are viewed as serious academic offences by the University and by the GFC Campus Law Review Committee (CLRC). Sanctions for such offences range from a reprimand to suspension or expulsion from the University.

GFC CLRC believes that students should be told, at the beginning of each term, how the University defines plagiarism and cheating, what constitutes misrepresentation of facts and participation in an offence -- and what the sanctions are. In particular, awareness of the latter offence may help students resist pressure from other students to assist them in acts of academic dishonesty. We would also like to ensure that all instructors know what they must do when they encounter instances where they believe plagiarism, cheating, misrepresentation of facts or participation in an offence might have occurred.

The "Don't Cheatsheet" is available on the University Governance website at:

<http://www.governance.ualberta.ca/> From the drop down menu click on *Student Appeals* and navigate to the Don't Cheatsheet.

### **University Policy:**

"Policy about course outlines can be found in §23.4(2) of the University Calendar".

"The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (online at [www.ualberta.ca/secretariat/appeals.htm](http://www.ualberta.ca/secretariat/appeals.htm)) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University."

**SSDS:** For students who write exams with accommodations at SSD, please be cognizant of their deadlines and regulations. If you fail to meet these deadlines or follow the procedures, the result is most likely that SSDS will be unable to provide the necessary space and/or services you require. In these situations, you will be invited to write your exams with peers during the allotted time in the assigned room.

## SEMINARS (held by **the TA**)

Teaching Assistant: Tamran Lengyel,

Email: [tamran@ualberta.ca](mailto:tamran@ualberta.ca)

### Objective of the Seminars

To encourage as much practice as possible in solving *relevant* problems.

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### In the Seminar

In each seminar, the instructor will select questions from the corresponding set of problems. These questions will then be discussed/solved in class.

For example, the instructor will demonstrate:

1. How to translate (model) the physical situation into (using) mathematics.
2. Which methods (tools) should be used to analyse the mathematical model.
3. How to interpret the results from the math in the context of the underlying mechanics.

The seminar problems are chosen specifically with assignments and examinations in mind: to supplement the assignments as part of the learning process and to prepare you for *exam-standard* questions. **Full solutions (to *all* the seminar problems) will be posted on-line.**

### Seminar Quizzes (10% of Final Grade)

***Five quizzes will be given in selected seminars even without a notice (so, do not miss any seminar!).*** In these seminars, instead of working through the corresponding problem, the instructor will provide a problem and ask each student to submit a written solution to that problem.

**The “seminar quizzes” (10%) will be based entirely on the marks of the five quizzes.**