

MOUNT ROYAL UNIVERSITY
DEPARTMENT OF MATHEMATICS, PHYSICS & ENGINEERING
ENGINEERING 3349 **COURSE OUTLINE** **WINTER 2011**

ENGR 3349 MECHANICS II

(Pre-requisite: ENGR 1205; UofC Equivalent: ENGG 349)

INSTRUCTOR:

Dr. Janice Miller-Young	Office: Q311E	jmyoung@mtroyal.ca	403-440-6030
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WEBSITE: <http://courseware.mymru.ca>

REQUIRED TEXT:

- Meriam, J.L. and Kraige, L.G. Engineering Mechanics - Dynamics, 6th Edition, SI Version, John Wiley & Sons, 2008.

CLASS SCHEDULE:

Section	Room	Day	Time
Lectures	B206	TR	3:30 – 4:50 pm
Tutorial	B231	M	12:30 – 2:00 pm

The topics and *approximate* dates are shown below:

Week # Dates	Topic	Text	Lecture hours	Assessments
1 Jan 10-14	Course Intro, review	1/1 – 1/8	1.5	
2 Jan 17-21	Kinematics of particles	2/1 – 2/5	3	A1 due Jan 21
3 Jan 24-28	Kinematics of particles	2/8 – 2/10	3	Q1 Jan 24
4 Jan 31 – Feb 4	Kinetics of particles	3/1 – 3-5	3	Midterm Jan 31
5 Feb 7 – 11	Kinetics of particles	3/1 – 3/5	3	A2 due Feb 11
6 Feb 14-18	Work and energy (particles)	3/6 – 3/7	3	Q2 Feb 14
7 Feb 28-4	Impulse and momentum, Impact (particles)	3/8 – 3/12	3	A3 due Mar 4
8 Mar 7-11	Systems of particles Moments of inertia	4/1 – 4/5 App. A & B	1.5 1.5	Q3 Mar 7
9 Mar 14-18	Kinematics of rigid bodies	5/1 – 5/6	3	Second midterm March 14

10 Mar 21-25	Kinematics of rigid bodies	5/1 – 5/6	3	A4 due Mar 25
11 Mar 28 – Apr 1	Planar kinetics of rigid bodies	6/1 – 6/5	3	Q4 Mar 28
12 Apr 4-8	Planar kinetics of rigid bodies	6/1 – 6/5	3	A5 due Apr 8
13 Apr 11-13	Work and energy (rigid bodies)	6/6	1.5	Q5 Apr 11

COURSE LEARNING OUTCOMES:

1. Students will be able to perform kinematic and kinetic analysis of particles in 2-dimensions, using the concepts of dynamic equilibrium, impulse, impact and momentum, and work and energy.
2. Students will be able to perform kinematic and kinetic analysis of rigid bodies in 2-dimensions, using the concepts of dynamic equilibrium, and work and energy.
3. Students will be able to analyze particles and rigid bodies under the action of static or dynamic friction.
4. Students will be able to calculate moments of inertia of 2- and 3-dimensional bodies, using integration.
5. Students will be able to express numerical answers to problems using proper mathematical symbols and terminology (eg. vector vs. scalar quantities), proper accuracy (eg. number of significant figures), and correct metric units.
6. Students will be able to describe mechanics concepts by answering word problems and real-life engineering problems in both written and oral presentation form, using accurate terminology and clearly explained reasoning.

COURSE COMPONENTS:

Lectures are designed to teach the basic principles of dynamics by clarifying information in the textbook, helping you thinking critically about concepts, and providing an opportunity for you to sharpen your analytical thinking skills. Students are expected to come prepared to lectures by having done the assigned readings and, when appropriate, pre-class quizzes. The lectures are *not* designed to introduce new material, nor to cover all the material students are expected to know in the course.

Tutorials are designed to give students more practice with solving problems. Recommended problems from the textbook will be posted in advance, and the best use of time will be for students to *try the problems before the tutorial* and to come with questions. Be prepared to use this time for practicing problem-solving skills.

TERM WORK:

Assignments will be given approximately every other week (as per course schedule, above) and must be completed individually. Students' best 4 of 5 marks will comprise their total assignment mark.
Percentage of final grade: 10%

Quizzes will be completed online before most lecture classes, to provide evidence of having read and understood assigned material from the textbook. Quizzes will be accessed through blackboard. Students' best (n-1) out of (n) marks will comprise their total quiz mark.
Percentage of final grade: 10%

Midterms will be written during the tutorial on January 31 and March 14. There will be no deferred midterms.

Percentage of final grade: 20% each

The **final exam** will be scheduled by the Registrar's Office (see the Academic Calendar for approximate dates). A minimum passing grade is required to achieve a C- or better in the course.

Percentage of final grade: 40%

GRADING:

A- to A+	85 to 100	Very Good to Excellent - top performers of the class, outstanding knowledge and abilities
B- to B+	70 to 84.5	Good - clearly above average performance with knowledge of subject matter generally complete
C- to C+	60 to 69.5	Satisfactory - basic understanding of the subject matter, passable performance
D to D+	50 to 59.5	Minimum Pass - marginal performance, insufficient preparation for Mechanics II
F	0 to 49.5	Fail - unsatisfactory performance or failure to meet course requirements

DROP/ADD and WITHDRAWAL:

The last day to drop/add a course this semester is January 18. The last day to withdraw from a course is March 18. A mark of "W" will appear on a student's transcript if he or she withdraws.

STUDENT REQUEST FOR A MARK REVIEW:

Students wishing to discuss a mark on a particular quiz, assignment or exam in this course are asked to complete the following steps before speaking with the instructor:

1. Review the requirements of the assignment.
2. Review grading criteria for the particular assignment.
3. Review the instructor's feedback on the assignment.
4. Arrange an appointment with your instructor and bring your assignment.

If a student is not satisfied with the result of such a review, they can speak with the Department Chair.

STUDENTS WITH DISABILITIES

Students with disabilities or chronic health conditions, who require accommodations in classes will need to register with Accessibility Services in Y201, telephone 440-6868, e-mail at accessibility@mtroyal.ca. Questions about supports and accommodations for students with chronic health concerns and/or disabilities can be addressed by an Access Advisor by appointment.

Accommodation does not lower academic or non-academic standards or relieve the student of the responsibility to develop the essential skills and competencies expected of all students in the course. To be eligible for accommodations, students must provide an accommodation letter, signed by a Disabilities Consultant, to the course instructor.

More information is available:

www.mtroyal.ca/AcademicSupport/ResourcesServices/StudentLearningServices

http://www.albertahumanrights.ab.ca/publications/bulletins_sheets_booklets/bulletins/duty_to_accommodate_students.asp

REGULATIONS:

Late assignments will not be accepted. Plagiarism will result in a score of zero on the document in question and possible expulsion from the course and/or documentation on your academic file. If an assignment is not handed in or if a midterm/quiz is missed, students receive a mark of zero on the evaluation. If a midterm is missed for a valid reason (medical or personal emergency with documentation), the remaining midterm will be worth 40%. A deferred final exam will only be granted once full documentation has been received, verified and accepted by the Department in a timely manner.

Please read the sections in the Mount Royal Academic Calendar concerning:

1. Changes in Registration.
2. Withdrawal Date.
3. Student Code of Conduct.
4. Academic Regulations.

These regulations will apply to you during the ENGR 3349 Winter 2010 course.