

University of Guelph
School of Engineering
Engineering Mechanics I ENGG*1210

Instructor

Instructor: Marwan Hassan, PhD, PEng email: mahassan@uoguelph.ca
Phone: ext 52429
Office: Rm 2405 Office Hours: Tu Thu 1:30-2:30
Lectures times: Tu and Thu 11:30am-12:50pm Lecture room: MAC, Room 149

Teaching Assistants

Alamgir Khan, MSc	email: alamgir@uoguelph.ca	Phone:	Office: Powell 212
Qiyue Song, MSc	email: qsong@uoguelph.ca	Phone:	Office: VMI 103A
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Textbooks

Engineering Mechanics: Combined Statics & Dynamics, 12th Edition, By Russell C. Hibbeler

Course Description

Specific Learning Outcome At the completion of the subject, students should be able to :

- Correctly draw the free-body diagram (FBD) for the system.
- Solve for the resultant of any force system.
- Determine equivalent force systems,
- Solve for the internal forces in the members of any plane frame, beams and trusses,
- Solve mechanics problems that involve friction force
- Determine the centroid, first moment and second moment of an area
- Describe the motion of a particle in terms of its position, velocity and acceleration in different frames of reference.
- Describe the forces causing the motion of a particle

- Obtain the equation of motion of a particle,
- Obtain work, energy, impulse and momentum relationships for a particle in motion
- Analyze the kinematics of plane motion of rigid bodies

Programme Outcomes CEAB outcomes

- Ability to acquire and apply fundamental principles of science, math, and engineering.
- Ability to identify, formulate and model problems and find engineering solutions based on a systems approach.
- Ability to utilize modern engineering tools such as Matlab.
- Demonstration of the understanding of engineering professionalism and ethics.

Lecture Schedule

Statics

1. Introduction
2. Statics of Particles
3. Rigid Bodies: Equivalent System of Forces
4. Equilibrium of Rigid Bodies
5. Distributed Forces Centroids and Center of Gravity
6. Analysis of Structures
7. Forces in Beams

Dynamics

1. Kinematics of Particles
2. Kinetics of Particles: Newtons Second Law
3. Kinetics of Particles: Energy and Momentum Methods
4. Kinematics of Rigid Body

Evaluation

Assignments (approximately 9)	0%
In tutorial Quizzes	10%
In class tests	20%
Term Tests (1) Oct 18	30%
Final Exam	40%

Miscellaneous

Assignments Assigned problems are for practice with no marks. You are required to attempt solving them on your own. Partial solution outlining the main steps will be posted at least a week later. There will be approximately 9 unmarked assignments, consisting of questions from the required text. There will be approximately 8 in-tutorial quizzes, closely based on the assignment questions. Quizzes need to be written in the students assigned section in order for the quiz mark to count. Only in extenuating circumstances, when accompanied by appropriate documentation and timely instructor notification, will students be allowed to write a quiz in a section other than the one that they have been assigned to.

In-class tests The in-class tests will be held during lecture period, and will be announced at least one week in advance. Please note that other university policies specified in University Undergraduate Calendar apply. Please see the following website for details.
<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

makeup/deferred exams and quizzes No makeup/deferred exams or quiz will be offered. If acceptable justification was provided for the missed exam/quiz the next exam/quiz will serve as a replacement.

Mark adjustments Requests for mark adjustments must be put forward within one week of the documents being returned to the students (no exceptions). The documents include quizzes, and exams. The document must be taken to the TA that marked it. Any paper that is re-marked will be re-marked entirely. Therefore, it is strongly suggested that you thoroughly review your entire document BEFORE making a re-marking request. Pencil-written works will not be remarked.

Attendance All students are expected to attend all classes. Important discussions will be held in class that may not be found elsewhere. Students questions and comments are highly valued.

Classroom Protocol Students should demonstrate their understanding of engineering as a profession and its responsibility to society. You should treat this class as if it were professional employment. This lecture and lab experience is intended to simulate real life. Students are expected to arrive in the classroom on time. You are responsible for all information, announcements, and course material presented in class. Professional behaviour reflecting the engineering profession is expected at all times. Cell phones are to be turned off during the class session. The use of laptops or tablets in class is restricted to taking class notes only.

Any violation of the laptops or tablets rules will result in restricting the future use. Students may not use a cell phone as a calculator when calculators are needed for this course. If you have questions for the instructor you should set up a meeting with the instructor as if it was your supervisor. Prepare for the meeting by knowing what you want to accomplish and consolidate your questions in a short time period.

University Policy on Academic Misconduct: Academic misconduct, such as plagiarism, is a serious offence at the University of Guelph. Please consult the Undergraduate Calendar 2008-2009 and School of Engineering programs guide, for offences, penalties and procedures relating to academic misconduct.
<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Disclaimer: The instructor reserves the right to change any or all of the above in the event of appropriate circumstances, subject to the University of Guelph Academic Regulations.