ENGG 130 ENGINEERING MECHANICS

Winter 2015

January 5 to April 10

Course Description:

Equilibrium of planar systems. Analysis of statically determinate trusses and frames. Friction. Centroids and centers of gravity. Forces and moments in beams. Second moments of area.

Textbook (Required):

R.C. Hibbeler, 2013. "Engineering Mechanics, Statics, 13th Edition in SI Units," Pearson
(Available at UofA bookstore in discounted package with Dynamics textbook used in following course)

Mastering Engineering (**M-E**, Required):

Online tutorial system for self-guided extra help and online assignments. M-E can be accessed through the eClass. Access code is provided with new UofA textbook package, or available for purchase at Campus eBookstore Incorporated (CEI) or through the eClass. If you decide not to purchase M-E access code or textbook, you can acess M-E only on certain computers located in Cameron Library.

Web Site:

Available through the eClass link at the top of http://www.ualberta.ca.

Assignment & Lab

Written assignment drop-box: 2nd floor of NREF; use the drop-box of your lab section.
Written assignment solutions are posted electronically to course website on eClass.
All labs are to be handed in at the end of the Lab.
Lab solutions posted in paper format only in the display case on the 2nd floor of NREF.
M-E assignments and solutions are available through the M-E website.

Mark Distribution:

Written Assignments	3%	
M-E Assignments	3%	
Laboratories	9%	
Mid-Term Exam	35%	**(Thursday February 26, 5 - 7 pm, Location TBA)**
Final Exam	50%	**(Tuesday April 21, 2 - 4 pm, Location TBA)**

Instructor:

Section	Name	Office	Email
B1	Dr. L. Deng	NREF 3-143	ldeng@ualberta.ca

Note: NREF refers to the Markin/CNRL Natural Resources Engineering Facility

Instructor Office Hours:

Tuesday, Thursday, 16:00 - 17:00

Help Desk (NREF 2-022):

One-to-one help with a teaching assistant (M 11 am - 1 pm, F 11 am - 1 pm)

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Week Sun.~Sat.	Topics	Text Articles	Written Assignments	Online Assignments (Mastering Eng.)	Theme
1/04/15 ~ 1/10/15	Review of the basics Scalars and vectors Vector addition Cartesian vector notation	1.1-1.6 2.1-2.5	#01: 2-15, 2-30, 2-38 Due: 1/12/15	# 01: Due: 1/13/15	Vectors
1/11/15 ~ 1/17/15	Addition of Cartesian vectors Position vectors Force directed along a line Dot product	2.6-2.9	#02: 2-62, 2-94,2-127 Due: 1/19/15	#02: Due: 1/20/15	Vectors
1/18/15 ~ 1/24/15	Particle equilibrium Free body diagrams Co-planar and three dimensional force systems	3.1-3.4	#03: 3-3, 3-19, 3-54 Due: 1/26/15	#03: Due: 1/27/15	Particle equilibrium
1/25/15 ~ 1/31/15	Vector cross product Moment of a force Moment of a couple	4.1-4.5	#04: 4-5, 4-41, 4-51 Due: 2/02/15	#04: Due: 2/03/15	Moments & couples
2/01/15 ~ 2/07/15	Reduction of a force and couple systems Reduction of simple distributed loads	4.6-4.9	#05: 4-71, 4-101,4-157 Due: 2/09/15	#05: Due: 2/10/15	Force - couple systems
2/08/15 ~ 2/14/15	Equilibrium in two dimensions Two-force members Equilibrium in three dimensions	5.1-5.6	#06: 5-2, 5-26, 5-67 Due: 2/23/15	#06: Due: 2/24/15	Rigid body equilibrium
2/22/15 ~ 2/28/15	Plane trusses Method of joints Method of sections	6.1-6.4	#07: 6-12, 6-21, 6-37 Due: 3/02/15	#07: Due: 3/03/15	Trusses
Mid-Term Exam (Thursday February 26, 5 - 7 pm, Location TBA), to End of Text 5.6					
3/01/15 ~ 3/07/15	Frames and machines Internal forces in members	6.6, 7.1	#08: 6-72, 6-100,7-13 Due: 3/09/15	#08: Due: 3/10/15	Frames & Machines
3/08/15 ~ 3/14/15	Shear force and bending moment (equations and diagrams) Relationships between distributed load, shear force, and bending moment	7.2, 7.3	#09: 7-51, 7-61, 7-8 Due: 3/16/15	#09: Due: 3/17/15	Internal Forces; SFD & BMD
3/15/15 ~ 3/21/15	Dry friction, wedges	8.1-8.3	#10: 8-3, 8-23, 8-59 Due: 3/23/15	#10: Due: 3/24/15	Friction
3/22/15 ~ 3/28/15	Center of gravity, center of mass Centroids of continuous body, and centroids of composite bodies	9.1-9.2, 9.4	#11: 9-2, 9-30, 9-59 Due: 3/30/15	#11: Due: 3/31/15	Centroids& center of mass& center of weight
3/29/15 ~ 4/04/15	Moments of inertia for areas Parallel axis theorem Moments of inertia of continuous areas	10.1-10.3	#12 10-2, 10-35,10-64 Due: 4/07/15	#12 Due: 4/07/15	
4/05/15 ~ 4/11/15	Moments of inertia of composite areas Product of inertia	10.4-10.5			Moments of inertia
Final Exam (Tuesday April 21, 2 - 4 pm, Location TBA)					

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Monthly Schedule, Winter 2015

January Schedule

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
			1	*2*	*3*	*4*
5	*6* Lec 1 Classes Start	*7*	*8* Lec 2	*9*	*10*	*11*
12 Assign # 1 Due at 3 pm	*13* Lec 3 M-E # 1 Due at 11:59 pm	*14* Lab 1	*15* Lec 4	*16*	*17*	*18*
19 Assign # 2 Due at 3 pm	*20* Lec 5 M-E # 2 Due at 11:59 pm	*21* Lab 2	*22* Lec 6	*23*	*24*	*25*
26 Assign # 3 Due at 3 pm	*27* Lec 7 M-E # 3 Due at 11:59 pm	*28* Lab 3	*29* Lec 8	*30*	*31*	

February Schedule

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
						1
2 Assign # 4 Due at 3 pm	*3* Lec 9 M-E # 4 Due at 11:59 pm	*4* Lab 4	*5* Lec 10	*6*	*7*	*8*
9 Assign # 5 Due at 3 pm	*10* Lec 11 M-E # 5 Due at 11:59 pm	*11* Lab 5	*12* Lec 12	*13*	*14*	*15*
16 *Family Day* (No class)	*17* *Reading week* (No class)	*18* *Reading week* (No class)	*19* *Reading week* (No class)	*20* *Reading week* (No class)	*21*	*22*
23 Assign # 6 Due at 3 pm	*24* Lec 13 M-E # 6 Due at 11:59 pm	*25* Lab 6	*26* Lec 14 *Midterm Exam* (5 pm - 7 pm)	*27*	*28*	

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Monthly Schedule, Winter 2015

March Schedule

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
						1
2 Assign # 7 Due at 3 pm	*3* Lec 15 M-E # 7 Due at 11:59 pm	*4* Lab 7	*5* Lec 16	*6*	*7*	*8*
9 Assign # 8 Due at 3 pm	*10* Lec 17 M-E # 8 Due at 11:59 pm	*11* Lab 8	*12* Lec 18	*13*	*14*	*15*
16 Assign # 9 Due at 3 pm	*17* Lec 19 M-E # 9 Due at 11:59 pm	*18* Lab 9	*19* Lec 20	*20*	*21*	*22*
23 Assign # 10 Due at 3 pm	*24* Lec 21 M-E # 10 Due at 11:59 pm	*25* Lab 10	*26* Lec 22	*27*	*28*	*29*
30 Assign # 11 Due at 3 pm	*31* Lec 23 M-E # 11 Due at 11:59 pm					

April Schedule

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
		1 Lab 11	*2* Lec 24	*3* Good Friday	*4*	*5*
6 Easter Monday Assign # 12 Due at 3 pm, Apr 7	*7* Lec 25 M-E # 12 Due at 11:59 pm	*8* Lab 12	*9* Lec 26	*10* Classes end	*11*	*12*
13	*14*	*15*	*16*	*17*	*18*	*19*
20	*21* *Final Exam* (2 pm - 4 pm)	*22*	*23*	*24*	*25*	*26*
27	*28*	*29*	*30*			

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Notes Concerning Written Assignments
All assignments must be done on Engineering Papers using pencil.
All assignments must follow the provided assignment solution format.
All assignments must be handed in before 3 PM on the due dates. Late assignments are not accepted and will receive a grade of zero.
Express your answers to 3 significant figures where appropriate.

Notes Concerning Mastering Engineering Assignments
Students must register for Mastering Engineering using their @ualberta.ca email address and ualberta student #.
There is no penalty for using hints or for multiple tries to solve the problem.
All grading takes place based on correct solutions at the due date and time indicated.

Notes Concerning Laboratories
You will solve several problems during each laboratory session. Bring pencil, calculator, straight edge, engineering paper, stapler, etc.
All lab worksheets are distributed at the beginning of the lab period. Labs must be completed on Engineering Papers and submitted, stapled, along with the question sheet, at the end of the lab period.

Notes Concerning Exams
Old exams are available on the course website; course emphasis, topics, etc. may differ each year.
Faculty Calculator policy is strictly enforced in all examinations. **Only non-programmable calculator with appropriate GOLD sticker will be permitted**. See the faculty website for the sticker procedure.

Student Responsibilities
Students are expected to be aware of their academic responsibilities as outlined in the Students' Rights and Responsibilities section in the University of Alberta calendar.

University Policy Regarding Academic Offences
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 hon behavior which could potentially result in suspicions of cheating, Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behavior (online at www.ualberta.ca/secretariat/appeals.htm) and avoid any 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 SSDS, 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.