ME 3200, Engineering Mechanics, Winter 2018, CRN10578, MW 3:30pm~5:17pm, SFH 365

Designation : A required course for all ME students.

Course Description – CATALOG DATA

ME 3200 Engineering Mechanics
Statics and **dynamics** of particles and rigid bodies: ~~analysis of trusses, frames, beams,~~ centroids and moments of inertia; kinematics, Newton's Second Law, work and energy, linear and angular impulse and momentum. With laboratory.

Instructor : Dr. Guobiao Yang
Associate Professor — Dodge Hall 121
Tel 248-370-2015 — Fax 248-370-4416
E-mail: gyang@oakland.edu — Homepage:

Office hours: W 5:30 ~ 6:30
After the lectures on W, Dr. Yang will be the last one who leaves the classroom.

TA : Chuanlin Tao, Email:ctao@oakland.edu, Statics and Dynamics Lab, EC 460.

Textbook : "Vector Mechanics for Engineers comb.," Beer and Johnston, 11th ed., McGraw Hill.
ref "Engineering Mechanics – Statics & Dynamics," Hibbeler, Pearson Prentice Hall.
ref other undergraduate Statics & Dynamics textbooks, check with Dr. Guobiao Yang.

Prerequisites : EGR 280 (> 2.0) and major standing.

HW Policy : The HW is due at the beginning of the class on the due date. HW solutions will be provided and discussed on due dates. **NO LATE HW WILL BE ACCEPTED!** Any questions about the grading should be addressed to the professor, **NOT the TA,** within one week after it's been returned.

TENTATIVE LECTURE, HW, QUIZ, and LAB SCHEDULE

Date	HQL	Reading Materials	Date	HQL	Reading Materials
01/03		Introduction	02/28	Q5	2D Rigid Body Kinetics f=ma
01/08		Particle Kinematics	03/05	H6	Particle Kinetics Work/Energy
01/10		Particle Kinematics	03/07	Q6 L3	Particle Kinetics Work/Energy
01/15		No class	03/12	H7	2D Rigid Body Kinetics Work/Energy
01/17		Particle Kinematics	03/14	Q7	2D Rigid Body Kinetics Work/Energy
01/22	H1	Particle Kinematics	03/19	H8	Particle Kinetics Impulse/Momentum
01/24	Q1	Lab (instruction)	03/21	Q8 L4	Particle Kinetics Impulse/Momentum
01/29	H2	2D Rigid Body Kinematics	03/26	H9	2D Rigid Body Kinetics Impulse/Momentum
01/31	Q2 L1	2D Rigid Body Kinematics	03/28	Q9	2D Rigid Body Kinetics Impulse/Momentum
02/05	H3	2D Rigid Body Kinematics	04/02	H10	3D Rigid Body
02/07	Q3	2D Rigid Body Kinematics	04/04	Q10	3D Rigid Body
02/12	H4	Particle Kinetics f=ma	04/09		Area & Mass Moment of Inertia
02/14	Q4 L2	Particle Kinetics f=ma	04/11		
02/19		Spring Break No class	04/16		A&Q
02/21		Spring Break No class			
02/26	H5	2D Rigid Body Kinetics f=ma	04/25		Final Exam

Final Exam, W 04/25, 3:30pm- 6:30pm, SFH 365

CLASS ATTENDANCE IS STRONGLY RECOMMENDED

Exam and Grading Policy : 10 HW assignments & 10 quizzes, 4 labs, and one three-hour comprehensive final exam will be given on the dates shown on the attached tentative schedule. **ONE lowest HW & quiz will be dropped, for any reason, or no reason, overslept, sickness, wedding, work, car won't start, etc.** There will be **NO make-up quizzes**. (Discuss with Dr. Yang when 2nd time Quiz absence happens with legitimate reasons.) The final course grade will be a weighted average of:

10 HW assignment	5 %	
10 Quizzes	45 %	(close book/notes/anything)
4 Lab Reports	20 %	
Final Exam (comprehensive)	30 %	(open one page)

(According to OU rules, if your lab part failed, the class failed automatically.)

>95--4, >80--3, >65--2, >50--1, <50--0. (grading scales) Any questions about the grading of all the papers should be addressed to the professor, **not the TA**, within one week after it's been returned.

Objectives : The student is expected to be able to carry out the following tasks upon completion of the course:

1. Design and perform experiments. Analyze experimental data and write technical reports. (a,b,d,f,g,k)
2. Apply Newton's second law to describe the static and dynamic equilibrium conditions of particles and rigid bodies. (a,e)
3. ~~Determine the internal forces in the members of a truss. (a,e)~~
4. ~~Express graphically and analytically the shear and bending moment of a beam. (a,e)~~
5. ~~Apply Coulomb's law of dry friction to determine equilibrium forces on wedges and belts. (a,e)~~
6. Determine the centroid of an area. (a,e)
7. Determine the moment of inertia of a plane area with respect to a given axis. (a,e)
8. Determine the mass moment of inertia of a body about a given axis. (a,e)
9. Apply the kinematics theory to determine the relative velocity and relative acceleration between two points in a rigid body in planar motion. (a,e)
10. Apply work and energy principles to describe and analyze the kinetics of a rigid body. (a,e)
11. Apply the principles of impulse and momentum to describe and analyze the kinetics of particles. (a,e)

Academic Conduct : Computer and Cell phone usage is NOT allowed in the class. Students are expected to read, understand, and comply with the "Academic Conduct Policy" as explained in Oakland University Undergraduate and Graduate catalogs. Violations will be taken before the Academic Conduct Committee. Students found guilty of academic misconduct in this course will receive a grade of 0.0 in addition to any penalties imposed by the Academic Conduct Committee.

HELP ME HELP YOU!!