ME/ENCE 2320 – DYNAMICS

J-term Syllabus

Instructor: Dr. Yildirim Hurmuzlu
301C Embrey
Phone: 8-3498, e-mail: hurmuzlu@lyle.smu.edu

Lectures: Lectures: SMU-in-Plano Campus, Classroom TBD

Website: Blackboard (courses.smu.edu)

Course Description:

Motion of a point; position, velocity, and acceleration; straight line motion; curvilinear motion. Force, mass, and acceleration; Newton's second law, inertial reference frames, equations of motion for the center of mass. Energy methods; work and kinetic energy, potential energy. Momentum methods; principle of impulse and momentum, impulse and angular momentum. Planar kinematics of rigid bodies. Two dimensional dynamics of rigid bodies. Energy in planar rigid body dynamics.

Prereqs: ME 2310 (Statics)

Required Textbook: *Dynamics Engineering Mechanics*: Bedford, A. and Fowler, W.; Addison-Wesley Publishing Company, Inc, fifth edition

Grading:

Class Participation	10%
Exams (2)	25% each
Final Exam	40%

Homework and Exam Policies:

Homework will be assigned at the end of each day (except the last day). The homework is provided as an exercise for the students, but will not be graded. Homework and additional exercises will be discussed in class. Participation in the class discussions will be weighted heavily in the class participation grade.

Three exams will be given during the J-Term (Jan. 9, 14, and 16). The exams comprise the majority of the grade for the course.

Lecture Policies:

Class attendance is mandatory. The class time will be divided between lecture, homework/exercise discussion, and exams. A typical daily schedule will be as follows:

9 – 10:20	Lecture
10:20 – 10:30	*Break (10 min)*
10:30 – 11:30	Lecture
11:30 – 12:00	Homework and in-class exercise discussion group
12:00 – 1:00	*Lunch (1 hour)*
1:00 – 2:20	Lecture or Exam. Exams will be held on Jan. 9, 14 during this period.
2:20 – 2:30	*Break (10 min)*
2:30 – 4:00	Lecture or Exam. The Final exam will be held on Jan. 16 during this period.

Notices:

University Honor Code: The SMU Honor Code applies to all work performed in this class (see http://smu.edu/studentlife/PCL_05_HC.asp). Giving or receiving dishonest aid on homework or exams, or toleration of such action, constitutes an Honor Code violation. An example of an Honor Code violation is submitting for evaluation a homework assignment that was completed with the aid of a solution set or was directly copied from a classmate (solutions from two different students should not look the same!). Honor code violations will be dealt with by the instructor and referred to the Honor Council if necessary.

Disability Accommodations: Students needing academic accommodations for a disability must first be registered with Disability Accommodations & Success Strategies (DASS) to verify the disability and to establish eligibility for accommodations. Students may call 214-768-1470 or visit http://www.smu.edu/alec/dass to begin the process. Once registered, students should then schedule an appointment with the professor to make appropriate arrangements.

Religious Observance: Religiously observant students wishing to be absent on holidays that require missing class should notify their professors in writing at the beginning of the semester, and should discuss with them, in advance, acceptable ways of making up any work missed because of the absence. (See University Policy No. 1.9.)

Excused Absences for University Extracurricular Activities: Students participating in an officially sanctioned, scheduled University extracurricular activity should be given the opportunity to make up class assignments or other graded assignments missed as a result of their participation. It is the responsibility of the student to make arrangements with the instructor prior to any missed scheduled examination or other missed assignment for making up the work. (University Undergraduate Catalogue)

Lecture Schedule

ME2320 – Dynamics, J-Term 2012

Date (Day)	Topics	Reading	Homework
1/7 (M)	Straight line Motion, Curvilinear Motion Newton's 2nd Law, Inertial Reference Frame, Equations of Motion for the center of Mass, Applications	13.1, 13.2, 13.3, 14.1; 14.2; 14.3	13.6, 13.24, 13.50, 13.52, 13.72, 13.73, 13.80, 13.95, 13.109, 13.116, 13.118 and 13.123, 13,37, 13.152
1/8 (Tu)	Principle of Work and Energy, Work and Power.	15.1; 15.2; 15.3; 15.4, 15.5	14.4, 14.18, 14.29, 14.38, 14.76, 14.75, and 14.68, 14.96, 14.99, 14.103
1/9 (W)	Principle of Impulse and Momentum. Conservation of Linear Momentum, Angular Momentum **EXAM 1 (1:00 P.M.)**	16.1; 16.2; 16.4;	15.6, 15.10, 15.25, 15.38, 15.57, 15.84, 15.91, 15.96 and 15.135
1/10 (Th)	Rigid Bodies and Types of Motion. Rotation about a Fixed Axis. General Motions: Velocities.		16.4, 16.11, 16.15, 16.25, 16.36, 16.47, 16.56, 16.60, 16.67, 16.69, and 16.131, 16.87,16.90
1/11 (F)	General Motions: Accelerations; Preview of the Equations of Motion, Momentum Principles for a System of Particles	17.1; 17.2; 17.3; 17.4	17.4, 17.20, 17.27, 17.32, 17.37, 17.38, 17.47, 17.73, and 17.77 17.83, 17.85, 17.87, 17.98 instant center, 17.99 instant center, 17.105 instant center, 17.115, and 17.169 instant center
1/14 (M)	Equations of Motion, Applications **EXAM 2 (1:00 P.M.)**	18.3; 18.4	18.21; 18.33; 18.43; 18.53 (eq-ns only), 18.55 (eq-ns only); and 18.59 (eq-ns only)
1/15 (Tu)	Principle of Work and Energy. Work and Potential Energy. Power	19.1; 19.2; 19.3; 19.4	19.9; 19.16; 19.20, 19.23; 19.24; 19.29; 19.37; and 19.107
1/16 (W)	Review **FINAL EXAM (INCLUSIVE) (2:00 P.M.)**		

Disclaimer: The lecture schedule is tentative and subject to change.

Note: It is highly recommended that students purchase the text book and read at least the first three (3) chapters BEFORE class begins on Jan 7.