CEE 101 : Statics and Dynamics
Department of Civil and Environmental Engineering
University of California, Los Angeles

Course Description:
Newtonian mechanics, vector representation, and resultant forces and moments. Free-body diagrams and equilibrium, internal loads and equilibrium in trusses, frames, and beams. Planar and nonplanar systems, distributed forces, determinate and indeterminate force systems, shear and moment diagrams, and axial force diagram. Kinematics and kinetics of particles. Linear and angular momentum and impulse. Multiparticle systems. Kinematics and kinetics of rigid bodies in two- and three-dimensional motions.

Enforced Requisites: Math 31A and Math 31B (Calculus) and Physics 1A (Mechanics – Motion, Newton's Laws, Work Energy, Linear and Angular Momentum, Rotation, Equilibrium, Gravitation)

Instructor: Arun Prakash
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Office Hours: 3066C, Boelter Hall; Thursdays & Fridays 11:00am – 1:00pm**;**

TA: Shi-Yu Xu
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Office Hours: 2047 Eng-I; Mondays 12:00pm – 1:30pm and 4:00pm – 6:00 pm

Lecture Times and Location:
Tuesdays and Thursdays: 8:00am-9:50am - Room 3400, Boelter Hall.

Discussion Time and Location:
Wednesdays: 4:00pm-5:50pm - Room 3400, Boelter Hall

Exams:
- Midterm Exam: Tuesday, October 30, 2007 - Room 3400, Boelter Hall
- Final Exam: Friday, December 14, 2007, 8:00am-11:00am –
                     Location: Room 3400, Boelter Hall

Make-Up Exams will **NOT** be given in this course except under extremely rare and unavoidable circumstances.

Homeworks:
- Due dates for assignments will be announced in class (usually Thursdays). Assignments are due at the beginning of the class period. LATE assignments will **NOT** be accepted since the solutions will be posted on the course website immediately after the due date.
- All work (problem assignments, exams) that you submit must be strictly your own work. Collaboration (giving and receiving help on concepts & problems) is allowed.
  Sharing your homework with another student or looking at another student's homework is **NOT** allowed.

Grade Basis:

Homework	30%	Midterm	30%	Final Exam	40%

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Required Text Books:

- *Statics: Analysis and Design of Systems in Equilibrium*, by **Sherri D. Sheppard** & **Benson H. Tongue**, John Wiley & Sons, 2005.
      Call Number: QA821 .S44 2005
- *Dynamics: Analysis and Design of Systems in Motion*, by **Benson H. Tongue** & **Sherri D. Sheppard**, John Wiley & Sons, 2005.
      Call Number: TJ173 .T66 2005

Recommended Reading (Some on Reserve in SEL Library):

- *Engineering Mechanics: Statics and Dynamics*, by **J. L. Meriam & L .G. Kraige**,
      Call Number: TA350 .M458 2007, 2002, 1997, 1992
- *Vector Mechanics for Engineers: Statics and Dynamics*, by **F. P. Beer and E. R. Johnston**,
      Call Number: TA350 .V34 2004
- *Engineering Mechanics: Statics and Dynamics*, by **A. Bedford and W. Fowler**,
      Call Number: TA350 .B353 2002
- *Engineering Mechanics: Statics and Dynamics*, by **R. C. Hibbeler**,
      Call Number: TA350 .H521e 1992
- *Engineering Mechanics: Statics and Dynamics*, by **David McGill and Wilton W. King**,
      Call Number: TA350 .M318 1989, 1985
- *Engineering Mechanics: Statics and Dynamics*, by **I. H. Shames**,
      Call Number: TA350 .S52e 1967

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Tentative Course Schedule

Week		Topic		
1			Sep 27	Introduction, Vectors, Forces
2	Oct 2	Moments, Equivalent Loads	Oct 4	Free-body diagrams and equilibrium
3	Oct 9	Free-body diagrams and equilibrium, Planar and nonplanar systems	Oct 11	Determinate and Indeterminate systems Distributed forces
4	Oct 16	Distributed forces	Oct 18	Internal loads in frames, machines and trusses.
5	Oct 23	Internal loads in frames, machines and trusses.	Oct 25	Beams and Cables, Review
6	Oct 30	MIDTERM EXAM	Nov 1	Introduction to Dynamics, Kinematics of particles
7	Nov 6	Kinematics of particles.	Nov 8	Kinetics of particles. Linear and Angular Momentum and impulse.
8	Nov 13	Impact	Nov 15	Energy methods for particles
9	Nov 20	Multiparticle systems.	Nov 22	THANKSGIVING
10	Nov 27	Kinematics of rigid bodies in 2D motions.	Nov 29	Kinematics and Kinetics of rigid bodies in 2D motions.
11	Dec 4	Kinetics of rigid bodies in 2D motions.	Dec 6	Review for Final exam
12			**Dec 14**	**FINAL EXAM** **8-11AM - 3400 Boelter**