

Engr 10

Date: Jan 5, 2015

Instructor: Edward Lam

Office: S48

Office hours: After class or

Fridays 2:30 pm. Place: RmS48

e-mail: lamedward@fhda.edu

Course Objectives: Explore different disciplines in engineering and science. Understand the physical principles underlying devices, machines, and concepts. See how others innovate through sites visits. Experience innovation through design. Express ideas and concepts analytically in writing.

Text: None

Tools Required: Arduino Microcontroller, bread board, and connecting wires

Important Factors:

1. Class participation
2. Homework
3. Exams base on homework, lectures, and videos
4. Project and presentation

Evaluation:

1. Homework:25
2. Project Report and presentation 15%
3. Midterm 30%
4. Final exam 30%
5. Extra credit- To be discussed

Course Grading: A(90-100%), B(80-89), C(70-79), D(60-69), and F(<60%)

Engr 10 Course Schedule (topics may subject to change):

Week	Week Date	Descriptions	Due Date
1	Jan 5	1. Discuss science and engineering, 2. Richard Muller, Feynman, Shechtman 3. Control Experiments, Stereotyping 3. Project: Arduino Projects 4. Web research: 3 Universities, eg: SJSU, Berkeley, Stanford 5. Engineering Salaries HW #1	

2	Jan 12	General engineering knowledge: 1. Basic mechanical: mech drawings, tools, machines, sheet metal 2. materials, joining, fasteners 3. Stress and Strain 4. Programming Arduino 5. Newton's Law 6. HW#2	HW set #1
3	Jan 19 M.King's birthday Jan 19	Civil Engineering: 1. Stability Criteria 2. Resonance, feedback, earthquakes, wind force 3. Personal design project HW#3	Due HW #2
4	Jan 26	Mechanical & Aerospace 1. Rocket: solid, liquid, space travel 2. Jet engine: turbo, ram, Ted Quad-copter 3. MEMS , micro-fluidics 4. Personal design Project Homework #4	Due HW #3
5	Feb 2	Electrical & Nano 1. Atoms, solids, metal, conduction 2. Insulator, semiconductors 3. Personal design Project 4. HW#5	Due HW#4
6	Feb 9 Lincoln's birthday Feb 13	Nuclear & Nano 5. Atoms, nucleus, forces, isotopes, decays, dating, environment (abundance) 6. Fission, fusion, reactor, n-bomb, 7. Particle & waves, Uncertainty principle Heisenberg 8. Personal design Project 5. HW#6	Midterm Due HW #5
7	Feb 16 Holiday Feb 16	Biomed-eng & Radiological 6. CT, MRI, PET, Airport scanner 7. Dosimetry 8. IEEE ICRA video 9. Personal design Project HW#7	Due HW #6
8	Feb 23	Personal design Project	Due HW#7
9	Mar 2	Personal design Project	

10	Mar 9	Presentation of Project Report No classes Nov 27 to Nov30	
11	Mar 16	Presentation of Project Report	
12	Mar 23	Final Exam Week, Mar 24-27	