

**Syllabus of ME/MSE 568: Active and sensing materials and their devices
Spring Quarter of 2009-revised on 5/1/2009**

Lecturer: Minoru Taya, MEB 263, Office hours, MW 10:30-12 noon

Time and place : T TH 3 :30- 4 :50 pm, Loew Hall 206

TA: Erin Black, email: black2@u.washington.edu

Text Book and References: ``Electronic Composites``, Cambridge University Press, 2005, by M. Taya and several handouts to be prepared by Taya and guest speakers.

Exam/final report/HWs: two mid-term exam, one final report on the topic of student choice, several HWs. Grade distribution among HWs, 2 Midterms and final report are, 30, (20+20) and 30% respectively.

Lecture No	date	Contents
1	March 31	Introduction to intelligent materials and devices
2	April 2	Electro-active polymer based active materials-2
3	April 7	Electro-active polymer based actuators
4	April 9	Metal(SMA, FSMA) based active materials-1(Liang)
5	April 14	Metal(SMA, FSMA) based active materials-2
6	April 16	Metal(SMA, FSMA) based actuators (Liang)
7	April 21	piezo-ceramic based active materials
8	April 23	piezo-ceramic based actuators
9	April 28	Nanostructured tip sensor for biomolecule detection (Chung)
10	April 30	Midterm exam-1
11	May 5	Polymer based mechano-sensors
12	May 7	Polymer based hygeothermal sensors
13	May 12	Polymer based chemical sensing materials and sensors
14	May 14	Bioinspired design of sensing and active materials-1
15	May 19	BioMEMS(Bohringer)
16	May 21	Polymer based chemo-sensors (Luscombe)
17	May 26	Structural health monitoring-1(general)(Ihn)
18	May 28	Structural health monitoring-2(airborne)(Ihn)
19	June 2	Midterm exam-2
20	June 4	Bioinspired design of sensors and actuators-2
Final exam report* due on June 12		

Guest speakers:

Dr JB Ihn (Boeing)
Professor Karl Bohringer (UW-EE)
Professor Christine Luscombe(UW-MSE)
Professor Jae Chung(UW-ME)
Professor Robert Liang(UW-ME)

* The topic of a final exam report should be selected by a student.