Course Syllabus

Course Information

MECH 6V29.002
Special Topics in Controls and Dynamic Systems
Dynamics and Control of MEMS (3 Credits)

Professor Contact Information

Professor Reza Moheimani
Department of Mechanical Engineering
ECSN 2.902
Tel: 972-883-4158
Email: reza.moheimani@utdallas.edu

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Successful completion of an undergraduate controls course

Course Description

Provides a comprehensive overview of MEMS devices and their control systems, including: MEMS fabrication processes; Sensing and actuation techniques in MEMS; Modeling and system identification of MEMS dynamics; Control, signal processing, and interface electronics design for MEMS; Case studies including: MEMS accelerometers, gyroscopes, force sensors, pressure sensors and nanopositioners.

Recommended Textbooks and Materials

V. Kaajakari. Practical MEMS, 2009
S. D Senturia. Microsystem Design, 2000

Suggested Course Materials

Assignments & Academic Calendar

Homework assignments and laboratory projects will be given as the course progresses. Students will present seminars based on research topics to be agreed with the instructor.

Grading Policy

Homework assignments and seminars (50%); Laboratory project (50%);

Course & Instructor Policies
(make-up exams, extra credit, late work, special assignments, class attendance, classroom citizenship, etc.)

Homework assignments, when distributed, will be due in one week with no possibility of extension. The same applies to computer simulations.

Off-campus Instruction and Course Activities

The instructor may be unavailable during the week of September 5-9 to attend a conference.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.