

EECS C245 / ME C218 Syllabus, Fall 2003

<http://www-bsac.eecs.berkeley.edu/projects/ee245/index.htm>.

Lecture 1 Course Overview, Introduction to MEMS

Lecture 2 Bulk Micromachining

Lecture 3 Surface Micromachining I

Lecture 4 Surface Micromachining II

Lecture 5 Surface Micromachining III

Lecture 6 Scaling of Forces in the Microworld

Lecture 7 Mechanics of Materials for MEMS

Lecture 8 Microstructural Elements

Lecture 9 Energy Methods I

Lecture 10 Energy Methods II

Lecture 11 Electrostatic Actuators I

Lecture 12 Electrostatic Actuators II

Lecture 12 Capacitive Position Sensing

Lecture 13 Alternative Transduction Principles

Lecture 16 Process Integration

Lecture 17 Fluid Dynamics: handouts

Lecture 18 Microfluidics: Electrokinetics and Fabrication

Lecture 19 Microfluidics for DNA Analysis

Lecture 20 Lab-on-a-Chip

Lecture 21 Two-Terminal Integrated Circuit Elements

Lecture 22 Transistor Models for MEMS Design

Lecture 23 Capacitive Position Sensing: Electronic and Mechanical Noise

Lecture 24 Wafer-to-Wafer Bonding and Packaging

Lecture 25 Assembly and Self-Assembly Processes

Lecture 26 Micromechanical Resonators I

Lecture 27 Micromechanical Resonators II