EECS C245 / ME C218 Syllabus, Fall 2003


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