EE147 / EE247A
Introduction to MEMS

Prof. Ming C. Wu
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511 Sutardja Dai Hall (SDH)
Course Staff

• Instructor: Professor Ming C. Wu
  – Email: mingwu@berkeley.edu
  – OH: Tuesday 2-3 pm; Friday 10-11 pm @ 511 SDH
  – Best way to communicate: Email

• Co-Instructor: Dr. Ali Darvishian
  – Email: darvishian@berkeley.edu

• GSI: Jean-Etienne Tremblay
  – Email: jetremblay@berkeley.edu (10 hour GSI)
  – OH: Thursdays 4-5 pm at 212 Cory
General Information

• Course objective
  – Understand the physics of MEMS (sensors, actuators) and basic fabrication processes

• Prerequisite
  – The course is designed for students from diverse backgrounds with knowledge of
    • Freshman physics (Phys 7B)
    • Basic electrical engineering (EE16A/16B)

• Lecture style
  – Old fashioned lectures
  – No webcast
  – Lecture notes will be posted (usually after lecture)
  – Questions and interaction encouraged in class
Course Web Sites

• Class website:
  – https://mingwuclass.berkeley.edu
  – Most course info, lecture notes, HW problems

• bCourses
  – https://bcourses.berkeley.edu/
  – Grades, HW submission, Exam solutions

• Piazza
  – Sign up: http://piazza.com/berkeley/fall2019/ee147ee247a
  – Online discussions, Q&A
Textbook

• No required textbook
• Recommended textbooks:
  – Kubby, A Guide to Hands-on MEMS Design and Prototyping
  – Kovacs, Micromachined Transducers Sourcebook [R]
  – Liu, Foundations of MEMS, 2nd edition [R]
  – Senturia, Microsystem Design
  – Madou, Fundamentals of Microfabrication [R]
  – Young, Roark’s Formulas for Stress and Strain
Grades

• EE147 and EE247A will be graded separately

• Grade calculation:

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<tr>
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<th>EE147</th>
<th>EE247A</th>
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<tbody>
<tr>
<td>Homework</td>
<td>35%</td>
<td>30%</td>
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<tr>
<td>Midterm</td>
<td>25%</td>
<td>15%</td>
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<tr>
<td>Final</td>
<td>40%</td>
<td>30%</td>
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<tr>
<td>Final Project</td>
<td>(+10%)</td>
<td>25%</td>
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• HW grading policy
  – Self-grading according to Rubric (spot check by GSI)

• Mandatory project for EE247A
  – 4-page IEEE style paper + short presentation

• Bonus mini-project for EE147
  – Prototyping + applications