

BME 142 (13625)

Microfabrication

Winter 2024

Course Syllabus

Instructor

Prof. Lily Wu, 1080 Anteater Instruction and Research Building, lwu@uci.edu
Office Hours: Thursday, 3:00 PM – 4:00 PM

Course Website

<https://canvas.eee.uci.edu/courses/61304>

Lectures

MWF 3:00 PM – 4:00 PM, Parkview Classroom Building 1200

Course Description

The course introduces the fundamentals of microfabrication and prototyping with the essential steps of photolithography, soft-lithography, micromolding and alternative fabrication techniques. Various micro/nano devices will be introduced including MEMS, BioMEMS, microfluidics, etc. Special emphasis will be placed on micro/nano devices for biomedical applications, such as microfluidic devices for on-chip diagnosis or analysis of biological samples. In addition, a visit to the cleanroom facility will be arranged to help enhance the understanding of different equipment used in microfabrication.

Reference Textbooks

Textbooks are not required for this course. If you would like to learn more regarding microfabrication, the following two books are recommended as references.

1. Fundamentals of Microfabrication and Nanotechnology, Third Edition, Volume Two: Manufacturing Techniques for Microfabrication and Nanotechnology, 1st Edition, *Marc J. Madou*, CRC Press, 2011
ISBN-10: 9781420055191
ISBN-13: 978-1420055191

2. From MEMS to Bio-MEMS and Bio-NEMS: Manufacturing Techniques and Applications, 1st Edition, *Marc J. Madou*, CRC Press, 2011
ISBN-10: 142005516X
ISBN-13: 978-1420055160

Course Requirements

Code of Conduct

All participants in the course are bound by the University of California Code of Conduct and Academic

Integrity policies:

- <https://aisc.uci.edu/policies/pacaos/code-of-student-conduct-handbook.pdf>
- <https://aisc.uci.edu/students/academic-integrity/index.php>

Citation of Sources

The University of California seeks to foster a spirit of honesty and integrity. Any work submitted by a student must represent original work produced by that student. Any source used by a student must be documented through normal scholarly references and citations, and the extent to which any sources have been used must be apparent to the reader. The University further considers resubmission of a work produced for one course in a subsequent course or the submission of work done partially or entirely by another to be academic dishonesty. It is the student's responsibility to seek clarification from the course instructor about how much help may be received in completing an assignment or exam or project and what sources may be used. Students found guilty of academic dishonesty or plagiarism shall be subject to disciplinary action up to and including dismissal from the University.

Homework

Homework assignments are required to be turned in on the date due. Late homework within five days from the due date will be accepted with penalty.

Financial Requirements

None. The \$85 materials fee is waived for students this quarter as the course is lecture based.

Grading Policy

Homework:	20%
Midterm exams:	30%
Final Exam:	20%
Group Project:	20%
Participation:	10%
Course Survey (extra credit):	2%

Accommodations

If you need support or assistance because of a disability, you may be eligible for accommodations or services through the Disability Services Center at UC Irvine. For more information, contact the Disability Services Center at (949) 824-7494 (voice), (949) 824-6272 (TTY), at www.disability.uci.edu.