

EECS C245/ME C218 Final Project Fall 2003

In the term project, you and a partner will design a useful MEMS or microfluidic device. The final paper will be in four-page, double-column conference format report with two or more figures; you will have a poster presentation as well. A model paper will be posted on the web site. Project teams will consist of two students. The topic should not be nearly identical to your thesis research, but can be tangentially related to it.

You may choose one of these processes for fabricating your MEMS or microfluidic device:

1. MUMPS (Surface micromachining)
2. Sandia SUMMiT process (Surface micromachining)
3. Polysilicon germanium (Integrated MEMS)
4. SOI MEMS (Integrated MEMS)
5. CMOS Foundry process (Integrated MEMS)
6. Microchannels etched in silicon or glass (Microfluidic chip)
7. Polymer molding technique with PDMS (Microfluidic chip)

(If you are familiar with MEMS fabrication techniques, you may develop your own process or a mixture of the above processes with permission from the instructors.)

Report

The final report should be in two column format, and a maximum of 4 pages long. The report is due Friday, December 5, 2003 at 5:00 pm.

Your team's report should include the following:

1. **Introduction**, describing what you are trying to do, and any related work in the field
2. **Design**, describing the fabrication method chosen and a description of the design decisions made and the layout. Basic analysis should be included in this section to support the design decisions.
3. **Test structures**, describing the design of the several structures that will verify performance of the subcomponents of the system.
4. **Expected results**, illustrating the expected performance of your test structures, and your overall system.
5. **Conclusions**, explaining the importance of your results.

Poster Presentation

Your team will also present your project at a poster session. The poster format will be identical to that used for the BSAC IAB Meetings. The poster sessions will be held in the Hogan Room, 521 Cory Hall, from 3:00-5:00 pm, on Thursday and Friday, December 11 and 12, 2003.

Project Milestones

- *Project proposals.* Write one paragraph, preferably with figures, describing your proposed project. Due November 4, 2003.
- *Detailed outline.* Include sketches of main system components and test structures. Include a bibliography with at least 3 citations. Due Thursday, November 20, 2003.
- *Final report.* Due Friday, December 5, 2003.
- *Poster presentation.* Thursday or Friday, December 11 or 12, 2003.