

Report: *Integrating MEMS Design Projects into Courses*

- **Challenges**
 - Creating new, real and challenging projects
 - Providing the course to larger audience
 - Critical mass in MEMS faculty (mentors, teaching rotations)
 - Cost, resources
 - Portability of projects/courses between institutions
 - How to get move these ideas into undergraduate curriculum???
- **Best Practices**
 - Completion of a full design, build and test cycle
 - Novel, real and challenging projects
 - Application of design methodologies (DFM, DFX)
 - Structured projects for quickstart on processing (shared projects and masks, maybe devices, e.g. Sandia)
- **Double edged swords**
 - Multidisciplinary students (common lingo)
 - Partnerships with industry/labs

Priorities for the Ideal MEMS curriculum

- Statistics and design of experiments
- Reliability/Failure analysis
- Design for manufacturability

- Thermodynamics
- Fluids
- Mechanics
- Device physics



Model development in physical systems (WHY did that happen)
Scaling laws
Linear systems

- Semiconductor Processing
- Materials Science
- Hands-on fabrication
- Open ended design project

- Packaging and Back End Processing
- Familiarity with process constrained design (MX, SummitV, MUMPS)