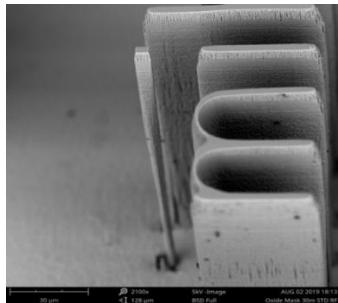


Concentration in Microsystems Engineering for ME Students!

Shared Credit students can register to count toward MS/PhD credits in ME, MEME, and NSME

Required Courses for the concentration: ME 318L, ME 370L, ME417/517, ME418/518, ME419/519

Fall Classes – can be taken concurrently

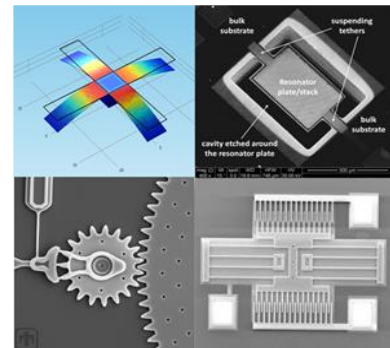


1. Fundamentals of Microsystems Fabrication – ME417/517: Dr. Matthias Pleil

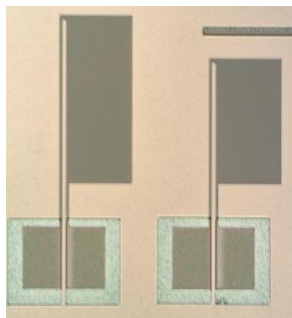
Description: Through hands-on labs, teamwork, and interactive lectures, the student can expect to be provided with an overview of fundamental microsystems fabrication methods, process optimization, and characterization found in micromachining technologies in a cleanroom environment.

2. Foundations of Microsystems Design – ME418/518: Prof. Nathan Jackson

Description: Learn about Microsystems design and transduction mechanisms of sensors and actuators using thermal, electrostatics, piezoelectrics, magnetics, piezoresistive, and microfluidics. Learn how to apply your fundamental science and ME knowledge to real life examples through academic research examples, design specifications, mask design, functional thin film material processing, project-based learning, and commercial case studies. The course will introduce you to Finite Element Modelling analysis and understanding of how to design micro-sensors and actuators.



Spring Class



Advanced Micro & Nano Systems Engineering – ME419/519: Prof. Nathan Jackson

Learn in-depth theory (lectures) and obtain hands on practical skills (cleanroom labs) on Microfabrication of Microsystems. Lectures and laboratory projects on physical theory, design, analysis, fabrication, and characterization of micro and nanosystems. Learn fundamental theory on microfabrication including oxidation kinetics, thin film deposition/growth, patterning, and etching to create complex 3D microscale devices. In the course students will get practical knowledge and obtain required skills to work in an industrial cleanroom environment through problem-based learning. The skills and knowledge learned in this course will be useful for students interested in microsystems or semiconductor manufacturing.