THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Principles of Precision Engineering

ISE 5550

Credit Hours:
3.00 - 3.00

Course Levels:
Undergraduate (1000-5000 level)
Graduate

Course Components:
Lecture
Lab

Course Description:
Principles of precision engineering with focus on design and performance of precision machinery, machine tool metrology and precision manufacturing processes.

Prerequisites and Co-requisites:
Prereq: MechEng 2010 and MechEng 2020; or MechEng 2040.

Course Goals / Objectives:
- Learn the fundamentals of precision engineering
- Study the basics of machine tool elements and structure, sources of errors and different machining processes
- Learn precision metrology with focus on actuators and fixture design and fabrication of precision components

Course Topics:

- Metrology
- Interferometry
- Error mapping, error budget and error correction
- Machine tool metrology
- Precision machine design
- Machine tool control
- Kinematics and work holding
- Temperature control
- Sensors
- Optical fabrication
- Micromachining
- Ultraprecision machining
- Replication processes
- Lithography

Designation:

Elective