THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Manufacturing Process Engineering

ISE 4500

Credit Hours:
3.00 - 3.00

Course Levels:
Undergraduate (1000-5000 level)

Course Components:
Lecture
Lab

Course Description:
A thorough quantitative understanding of contemporary manufacturing processes; exposure to laboratory exercises and computer simulations in major manufacturing processes; design for manufacturing and assembly.

Prerequisites and Co-requisites:
Prereq:
Option 1: MechEng 3670. Prereq or concur: MechEng 3503, Or
Option 2: MechEng 2020 or 2040, and WeldEng 4201 or MechEng 3500 or MatScEn 3151; or permission of instructor.

Course Goals / Objectives:
- Identify viable production processes to create a discrete finished part from a given raw material
- Design the critical parameters of basic manufacturing processes, analyze their magnitude, and predict their influence on process functions
- Determine the tooling and equipment requirements for common transformation and inspection processes, given an engineering description of a finished component or assembly
- Given a functional description of a component or assembly, students will be able to specify feasible materials and processes for manufacturing and create a process plan for producing the component/assembly
- Identify the key material properties of engineering materials and understand their influence on manufacturing processes

Course Topics:

- Material properties in manufacturing
- Solidification processes in metals
- Solidification processes in polymers
- Deformation processes in metals
- Material removal processes
- Additive and MEMS processes
- Design for assembly and manufacturing
- Joining processes for metals and polymers
- Measurement processes and tolerances

Designation:

Elective