



THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Manufacturing Data Processing and Analysis

ISE 5570

Credit Hours:

3.00

Course Levels:

Undergraduate (1000-5000 level)

Graduate

Course Components:

Lecture

Course Description:

Project-based introduction to manufacturing data streams and methods to process and analyze them towards solving manufacturing problems in process planning and quality control.

Prerequisites and Co-requisites:

(CSE 1222 or CSE 1223 or CSE 1224 or CSE 2021) and (STAT 3470 or STAT 3450 or STAT 3460) and Major in Engineering or instructor approval

Course Goals / Objectives:

- Expose students to typical data streams generated in manufacturing workflows, including: process planning, process monitoring sensors, processing logs, post process inspection, etc.
 - Introduce common data processing methods, including: data organization and filtering, image processing, data registration and fusion, etc. in the context of data provenance and application
 - Introduce common data analytic methods, including: regression, outlier detection, causal analysis, optimization, etc. in the context of data quality and application
 - Provide practical experience with algorithm development and decision-making with presented with applied manufacturing problems
-

Course Topics:

- Introduction to manufacturing data streams and practical considerations of data origin, sources of error/noise, and other limitations to use
 - Overview of selected manufacturing process and the critical data streams associated with their workflows
 - Data processing methods and implementations for data streams including, but not limited to image data, time series data, process logs, mechanical and profile measurements
 - Data analytics methods and implementations for relevant manufacturing problems including, but not limited to process planning and quality control
-

Designation:

Elective