



THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Production Planning and Facilities Design

ISE 3400

Credit Hours:

4.00 - 4.00

Course Levels:

Undergraduate (1000-5000 level)

Course Components:

Lecture

Course Description:

Introduction to production systems control: deterministic and stochastic, static and dynamic, single-stage and multi-stage inventory control, MRP systems, just-in-time, scheduling. Facility and machine location models, storage models (warehouse, ASRS), simple layout models, systematic layout planning with applications in manufacturing, health care, service and logistics.

Prerequisites and Co-requisites:

Prereq: 3200, Stat 3470, and enrollment in ISE or Engineering Physics major. Additional prereq for students enrolled in ISE major: ISE 3600.

Course Goals / Objectives:

- Identify modern alternatives for production system control
 - Apply quantitative models to the operation of a production system
 - Understand where each method is appropriate
 - Understand how each subsystem relates to the overall production system
 - Understand the integration of production planning, inventory control, scheduling, shop floor control and operational execution, etc. under the umbrella of facility logistics.
 - Define and communicate the requirements for a new or renovated facility;
 - Create viable alternative layouts to efficiently perform the intended facility activities;
 - Specify appropriate material handling methods and equipment for the facility;
 - Define and include appropriate personnel requirements in a facility layout;
 - Quantitatively evaluate alternative facility designs, select the best design, and present the design in a professional manner.
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Course Topics:

- Definitions
 - Inventory Planning Models: Static vs. Dynamic, Deterministic vs. Stochastic, Single-stage vs. Multi-stage
 - Materials Requirement Planning, Enterprise Resource Planning
 - JIT Systems
 - Scheduling
 - Defining requirements of a facility
 - Developing alternate facility plans; quantitative methods
 - Evaluating, selecting and presenting facility plans
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Designation:

Required