

Master Course Syllabus Outline

Department: Engineering Technology **Course Prefix/Number:** MQL 536

Official Course Title: Manufacturing Planning

Master Syllabus Approved by Department on: 10/27/2005

I. Catalog Description: Topics that will be covered include strategic issues such as the design of products and services, and the design of processes and facilities. Planning and controlling activities including capacity planning, quality control, inventory control, scheduling, and project planning are covered. The emphasis of this course will be on the development and application of analytical methods and techniques.

II. Prerequisites: MQL 524 or concurrent enrollment

III. Expanded Course Description: Several basic forecasting techniques (including exponential smoothing) will be covered. Several basic inventory models, including the ABC System, EOQ model, and Lot-Sizing will be covered. A thorough coverage of the MRP system, including how MRP works, aggregate planning, and master scheduling will be accomplished. The theory and basics of the Japanese philosophy of JIT and Synchronous Manufacturing will be presented. A comparison of the advantages and disadvantages of the MRP and JIT philosophies will be presented.

IV. Knowledge Outcomes:

1. Understand the hierarchy of production planning and control decisions from long term planning to real-time batch control.
2. Ability to select an appropriate production control scheme for a specific manufacturing environment.
3. Understand the interaction between marketing, purchasing, engineering design, manufacturing, and production control.
4. Ability to analyze performance of a production plan - cost and time.
5. Ability to specify optimal parameter values for various production control systems.
6. Understand of aggregate planning models including ability to formulate objective functions, resource constraints, and inventory balances.
7. Ability to create a Master Production Schedule.
8. Ability to create a feasible material plan for an MPS including understanding of MRP explosion and inventory allocation.
9. Understand of capacity requirements planning and plan revision to obtain feasibility, including planned order firming.
10. Understand impact of setup time and reduction strategies.
11. Ability to plan production and orders in a stochastic environment.
12. Knowledge of basic scheduling rules and their properties.

V. Unless otherwise stipulated in this master syllabus by the department, the following

items are subject to faculty discretion as described in each faculty member's individual course outline/syllabus:

- a) Course Requirements? (grading/evaluation procedures; class attendance policy; term papers, projects, field assignments; examinations; class participation, etc.)
- b) Required Text(s)?
- b) Bibliography?

Department Head Signature/Date:

Signature

_____/_____/_____
Date