

ORI 390Q.2 - Production and Inventory Control
Spring 2005
Syllabus

Professor

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Office Hours

TTh, 1:00 p.m. – 2:00 p.m., (or, stop by anytime, I'll meet with you if I am not busy)

Class Meetings

TTh, 2:00 p.m. – 3:30 p.m., ETC 5.132

Course Web Page

Blackboard: <http://courses.utexas.edu>

(Official) Course Description

Subject Matter Description: Industrial engineering techniques for quantitative solution of contemporary systems and management problems. *Topic Description:* Issues in inventory control with known and unknown demand, materials requirement planning, just-in-time, pull control systems, operations scheduling, dispatching and aggregate planning, and the basic dynamics of production and inventory control. *Meeting Information:* Three lecture hours a week for one semester. *Degree Plan Information:* May be repeated for credit when the topics vary. *Prerequisite:* Graduate standing and consent of instructor.

(Real) Prerequisites

Basic probability and statistics, introductory operations research

Objectives

- Identify dynamic interactions among different elements of a production or distribution system.
- Develop aggregate production plans and detailed schedules through simple policies and more sophisticated mathematical models.
- Analyze and develop inventory management policies under deterministic and stochastic environments.
- Find the differences among several production systems such as MRP, JIT, CONWIP, etc.
- Calculate the effects of variability on the output of a production system, and develop strategies to cope with the adverse effects of variability.

Text

W. J. Hopp and M. L. Spearman, *Factory Physics: The Foundations of Manufacturing Management*, Irwin/McGraw-Hill, 2000 (Second edition).

Other references

- S. Nahmias, *Production and Operations Analysis*, Irwin/McGraw-Hill, 1997
- D. Sipper and R. L. Bulfin, *Production: Planning, Control, and Integration*, McGraw Hill, 1997.
- L. A. Johnson and D. C. Montgomery, *Operations Research in Production Planning, Scheduling, and Inventory Control*, Wiley, 1974.
- E. A. Silver, D. F. Pyke, and R. Peterson, *Inventory Management and Production Planning and Scheduling*, Wiley, 1998.
- P. Zipkin, *Foundations of Inventory Management*, Irwin/McGraw-Hill, 2000.

Software

- MS Excel
- Jensen Add-ins: www.ormm.net

(Tentative) Outline

- Factory Physics? and Manufacturing in America (Chapters 0 and 1)
- Inventory Control: From EOQ to ROP (Chapter 2)
- The MRP Crusade (Chapter 3)
- The JIT Revolution (Chapter 4)
- Basic Factory Dynamics (Chapter 7)
- Variability Basics and the Corrupting Influence of Variability (Chapters 8 and 9)
- Push and Pull Production Systems (Chapter 10)
- A Pull Planning Framework (Chapter 13)
- A Shop Floor Control (Chapter 14)
- Production Scheduling (Chapter 15)
- Inventory Management (Chapter 17)
- Capacity Management (Chapter 18)

Grading

You will have one exam, about 10 homework assignments, and a project. The grading will be based on the following weights:

- Homework Assignments (Each due before class): 30%
- Term Project (Interim report due March 21, Final report due May 2): 30%
- Midterm Exam: 40%

I expect that each assignment (homework, project and exams) be neat and professional. You will not be allowed to make up homework and exams unless there is a documented emergency. Homework that is one class late will be penalized 10%; it will not be accepted after that date.

Academic Dishonesty

Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from the University. Since dishonesty harms the individual, fellow students, and the integrity of the University, policies on scholastic dishonesty will be strictly enforced. Cheating will not be tolerated, and incidents of dishonesty will be reported. For more information, and for what constitutes “cheating,” see:

<http://www.utexas.edu/student/registrar/catalogs/gi03-04/app/appc11.html>.

Students with Disabilities

The University of Texas at Austin provides, upon request, appropriate academic adjustments for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-4241 TDD, or the College of Engineering Director of Students with Disabilities at 471-4321.

Course Evaluation

Near the end of the semester, you will have an opportunity to anonymously evaluate the course and instructor using the standard College of Engineering evaluation form.

Dropping the Course

An engineering student must have the Dean’s approval to add or drop a course after the fourth class day of the semester. A student may not drop a class after the fourth class day except for good cause (health or serious personal problems). A student seeking to drop a class after the fourth class day should go to the College of Engineering Office of Student Affairs (ECJ 2.200).

Web Site and Privacy

Web-based, password-protected class sites are associated with all academic courses taught at The University. The syllabus, handouts, assignments and other resources are types of information that may be available within this site. Site activities could include exchanging e-mail, engaging in class discussions and chats, and exchanging files. In addition, a class e-mail roster will be a component of the sites. Students who do not want their names included in this electronic class roster must restrict their directory information in the Office of the Registrar, Main Building, Room 1. For information on restricting directory information, see:

<http://www.utexas.edu/student/registrar/catalogs/gi03-04/app/appc09.html>.

Changes to the syllabus

You are responsible for any changes to this syllabus announced in class during the semester.