Department of Industrial Engineering
University at Buffalo (State University of New York)
IE 505 Production Planning and Control

Instructor: Dr. Rakesh Nagi
Office: 309 Bell
Phone: 645-2357 x 2103
E-mail: nagi@buffalo.edu
Office hrs.: Tu, Th: 1:00-1:50 pm & appointment

TA: Yu Wang
Office: 422 Bell Hall
E-mail: ywang7@eng.buffalo.edu
Office hrs.: Tu, Th 3:30-4:30 pm & by appointment

Class Schedule: Tu, Th: 2:00-3:20 p.m., 103 Clemens Hall

Course Overview
This graduate level course covers the production management related problems in manufacturing systems. It blends quantitative and qualitative material, theoretical and practical perspectives, and thus, bears relevance for academic as well as industrial pursuits. The introduction consists of the production and operations management strategy. The topics covered include simple forecasting methods, workforce planning, inventory control, production planning, materials requirements planning, operations scheduling, and project management. Recent developments in production management such as just-in-time (JIT) inventory systems, flexible manufacturing systems (FMS), bottleneck scheduling, and hierarchical production management systems (HPMS) will also be discussed.

Basic Requirements
• Basic calculus
• Elementary probability and statistics
• Notions of Linear Programming
• General understanding of the production function

Required Text

Required Work and Grading Policy
1. Homework - weekly assignments 20%
2. Project - one proposal, one progress report, one final report 30%

Group projects will be performed, addressing problems encountered in real-type applications. Each group will seek an industrial enterprise and
will study one of the PPC problems (see course outline). Recommendations for improving the current situation should be included in the final report.

3. Exams - one midterm (25%), one final (25%) 50%
(+/- Grading scheme will be employed)

**Course Outline**

1. Overview of Production and Operations Strategy 1
2. Forecasting 2
3. Aggregate Planning 3
4. Inventory Control 4,5
5. Supply Chain Management 6
6. Materials Requirements Planning, Just-In-Time 7
7. Operations Scheduling 8
8. Project Scheduling 9
9. Recent Advances +

**General References**