



Course Syllabus

General Information

Course Number: InIn 6019
Course Title: **Advanced Production Control**
Credit-Hours: Three

Course Description

Advanced topics in forecasting, inventory and applied stochastic processes as they relate to production control systems. Integration of these topics in the production planning process using mathematical optimization techniques and case studies.

Prerequisites

Authorization of the Director of the Department

Textbook and References

- Hopp, W. J., and Spearman, M. L., 2001, **Factory Physics**, 2nd Edition, McGraw-Hill.
- Vollman, T.E., Berry, W.L., Whybark, D.C. and Jacobs, 2005, **Manufacturing Planning and Control for Supply Chain Management**, 5th Edition, McGraw-Hill.
- Nahmias, S., 2005, **Production and Operations Analysis**, 5th Edition, McGraw-Hill.
- Zipkin P. H., 2000, **Foundations of Inventory Management**, McGraw Hill.

Purpose

This is a course designed primarily for graduate students in Industrial Engineering. However, other engineering students might take as elective as well. The purpose of the course is to give a solid foundation about inventory theory and aggregate production planning. This course is one of the core courses in the graduate program.

Course Goals

At the completion of the course the students will be able to classify different manufacturing systems by certain characteristics; determine the right planning tool for each system; determine what inventory model to use for constant, time-varying and probabilistic demand patterns; select decision rules for different classes of items; develop mathematical models for aggregate production planning.

Requirements

All students are expected to :

- Complete all lessons.
- Do all assigned readings and related homework.
- Come to class having reviewed the material covered in the previous classes.
- Come to class all the time and on time.

Satisfy all assessment criteria to receive credit for the course. Operating radios, tapes recorders, cellular, telephone, beepers and other audio or video equipment are not permitted in the classroom at any time. Smoking is not permitted in any area other than those areas designated for smoking.

Department and Campus Policies

Class attendance: Class attendance is compulsory. The University of Puerto Rico, Mayagüez Campus, reserves the right to deal at any time with individual cases of non-attendance. Professors are expected to record the absences of their students. Frequent absences affect the final grade, and may even result in total loss of credits. Arranging to make up work missed because of legitimate class absence is the responsibility of the student. (Bulletin of Information Undergraduate Studies)

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Absence from examinations: Students are required to attend all examinations. If a student is absent from an examination for a justifiable reason acceptable to the professor, he or she will be given a special examination. Otherwise, he or she will receive a grade of zero of "F" in the examination missed. (Bulletin of Information Undergraduate Studies)

Final examinations: Final written examinations must be given in all courses unless, in the judgment of the Dean, the nature of the subject makes it impracticable. Final examinations scheduled by arrangements must be given during the examination period prescribed in the Academic Calendar, including Saturdays. (see Bulletin of Information Undergraduate Studies).

Partial withdrawals: A student may withdraw from individual courses at any time during the term, but before the deadline established in the University Academic Calendar. (see Bulletin of Information Undergraduate).

Complete withdrawals: A student may completely withdraw from the University of Puerto Rico, Mayagüez Campus, at any time up to the last day of classes. (see Bulletin of Information Undergraduate Studies).

Disabilities: All the reasonable accommodations according to the Americans with Disability Act (ADA) Law will be coordinated with the Dean of Students and in accordance with the particular needs of the student.

Ethics: Any academic fraud is subject to the disciplinary sanctions described in article 14 and 16 of the revised General Student Bylaws of the University of Puerto Rico contained in Certification 018-1997-98 of the Board of Trustees. The professor will follow the norms established in articles 1-5 of the Bylaws.

Grading System

Quantifiable (letters) Not Quantifiable

89.500 → 100 A

79.500 → 89.499 B

65.500 → 79.499 C

59.500 → 65.499 D

0 → 59.499 F

Evaluation Strategies

	Quantity	Percent
Exams	(1-3)	50-60%
Final Exam	1	20-25%
Short Quizzes		
Oral Reports	1	10-15%
Monographies	0-1	10-15%
Portfolio		
Projects	1-2	10-15%
Journals		
Other, specify: Laboratory Work		
TOTAL:		100%

Campus Resources

General Library and University Computer Center is available to obtain professor=s reference materials. The University=s Counseling Office has a tutorial program for students who need extra help.

Course Syllabus

General Topics

Topic	References
Introduction & Overview	Ch 6
Factory Dynamics	Ch. 7
Variability and Production Systems	Ch. 8
MRP and JIT Systems	Ch. 3, 4
Comparison of MRP, JIT and CONWIP	Ch. 5, 10
Pull Planning Framework	Ch. 13
Capacity Planning	Ch. 18
Aggregate Planning	Ch. 16
Inventory Management	Ch. 2
Supply Chain Management	Ch.17
Shop Floor Control	Ch. 14

*Legend:

T= Hopp and Spearman, 2001