

INTER AMERICAN UNIVERSITY OF PUERTO RICO
METROPOLITAN CAMPUS
ECONOMICS AND ADMINISTRATIVE SCIENCES FACULTY
MBA PROGRAM
COURSE SYLLABUS

I. GENERAL INFORMATION

COURSE TITLE	:	Analysis of Production Systems
CODE AND NUMBER	:	BADM-6120
CREDITS	:	Three (3)
ACADEMIC TERM	:	
PROFESSOR	:	
OFFICE HOURS	:	
OFFICE TELEPHONE	:	
ELECTRONIC MAIL	:	

II. DESCRIPTION

Design and operation of manual, mechanized and automatic production lines: material movement, balancing stations, work-loads for flow production, physiological and psychological factors in task design, support activities and flexibility. PREREQUISITES: Admission to M.B.A. Program

III. OBJECTIVES

1. Students should have a basic understanding of quantitative methods, managerial statistics, business management and organizational theory.
2. Put operations management system in perspective by recognizing the inputs, transformation process, desired outputs and feedback loop of a system.
3. Know the differences between strategic decisions, design decisions and operational decisions.
4. Know how management of operations can effectively contribute to productivity improvement and to understand the importance of value driven management.
5. Know various functional areas of an organization and their critical integrated role in the performance of the organization.
6. Know the differences between manufacturing and service organizations and the differences between designing production and service systems.
7. Know the concept of competitive priorities and the need to control operational costs as a way for the business organization to compete.

8. Know the differences between various production systems in terms of production volume and customization.
9. Know the basic concepts of Scheduling and Human Resources elements related to POM..
10. Know the important role of manufacturing, service, and information technologies in competitive position of the organizations.
11. An understanding of the basic analytical principles used in production and operations management.
12. Since this is an analysis of production systems the student will know the principles involved in the development of the management thought from its beginning and how has moved from its roots in the United States to Puerto Rico.
13. The student will understand the basic underlining cultural factors involved in the analysis and therefore the design manufacturing and services operations.

IV. COURSE CONTENT

1. Introduction to operations and competitiveness
 - a. Brief history of operations management from Taylor to present time
 - b. Globalization and its effect on Operations Management
 - c. Production and Operations Management and Competitiveness
2. Operations strategy
 - a. Competing on costs
 - b. Competing on quality
 - c. Competing on flexibility
 - d. Competing on speed
 - e. Corporate Strategy and Operations
 - f. Strategic Deployment
3. Tools for decision making in Operations
 - a. Decision making without probabilities
 - b. Decision making with probabilities
 - c. Expected value of perfect information
 - d. Sequential decision tress
4. Product and Service Design
 - a. Idea Generation
 - b. Feasibility study
 - c. Preliminary design
 - d. Form design
 - e. Functional design
 - f. Production design
 - g. Final design
 - h. Process Planning
 - i. Techniques for improving the design process
 - i. Design Teams

- ii. Concurrent Design
 - iii. Design for Manufacture and Assembly (DFMA)
 - j. DFMA in cost reduction
 - i. Design Review
 - ii. Metrics for Design Quality
 - iii. Robust Design
 - iv. Quality Function Deployment
 - k. Computer Assisted Design (CAD)
 - l. Computer Integrated Manufacturing (CIM)
 - m. Service Design
 - i. Service Characteristics
 - ii. Service Process Design
- 5. Process and Technologies
 - a. Types of Production Processes
 - i. Project
 - ii. Batch
 - iii. Mass Production / Assembly Line
 - iv. Continuous Production
 - v. Break even analysis
 - b. Process Planning
 - i. Manufacture versus Purchasing
 - c. Process Analysis
 - d. Process Reengineering
 - e. Technologies
 - i. Information Technology
 - ii. Production Technologies
 - iii. e-Manufacturing
- 6. Facilities
 - a. Basic Layouts
 - i. Process Layouts
 - ii. Product Layouts
 - iii. Cellular Layouts
 - iv. Fixed Positions Layouts
 - b. Designing Process Layouts
 - i. Block Diagrams
 - ii. Relationship Diagrams
 - iii. Service Layouts
 - c. Designing Product Layouts
 - i. Shared spaces
 - ii. Production Line Balancing
 - d. Hybrid Layouts
 - i. Cellular Layouts
 - ii. Flexible Manufacturing Systems
- 7. Facilities Location
 - a. Types of Facilities
 - b. Gravity Method
 - c. Load Distance Technique
 - d. Global Factors and Incentives
- 8. Capacity and Aggregate Planning

- a. Capacity Analysis
 - b. Strategic Planning of Capacity
 - c. Best Operating Level for the Demand
 - d. Short, Medium and Long term Planning
 - e. Master Production Schedule
 - f. Rough-Cut Capacity Planning
 - g. Materials Requirements Planning
 - h. Hierarchical and Collaborative Planning
 - i. Order Scheduling
 - j. Workforce Level
 - k. Pure Strategy versus Mixed Strategy
 - l. Aggregate Planning for Services
9. Scheduling
- a. The Nature and Importance of Work Centers
 - i. Typical Scheduling and Control Functions
 - ii. Job Sequencing
 - b. Priority Rules and Techniques
 - i. Scheduling n Jobs in One Machine
 - ii. Scheduling n Jobs in Two Machines
 - iii. Scheduling n Jobs in x Machines
 - iv. Scheduling with Gantt Charts
 - c. Personnel Scheduling in Services
10. Human Resources in Operations
- a. The Changing Nature of Human Resource Management
 - b. Empowerment and Responsibilities
 - c. Training
 - d. Teamwork
 - e. Temporary Employees and Part-Time Employees
 - f. Task Design
 - g. Task Analysis
 - h. Work Measurement
 - i. Cross-cultural Problems in Operations

V. ACTIVITIES

- A.** Lectures
- B.** Case Studies
- C.** Supplementary readings
- D.** Internet searches
- E.** Audiovisual Support: Powerpoint presentations, videos
- F.** Presentation and discussion of relevant academic journal or trade journal articles

VI. EVALUATION

Required activities to achieve course objective should include various pedagogical activities such as, homework, presentations, short quizzes, partial examinations and

interactive participation. It is highly recommended the utilization of the Blackboard platform as a support system for the course. Assessment techniques should be applied at professor discretion.

VII. SPECIAL NOTES

A. Special Accommodations

Students who require special accommodations must request these services at the beginning of the course as soon as they notice that they need help. Students can access this service with Professor Jose Rodriguez, Coordinator of Students with Special Needs at the Guidance and Counseling Office on the first floor at Metro's Student Center.

B. Plagiarism

Plagiarism, dishonesty, fraud and any other type of manipulation or inappropriate behavior related with academic performance are unacceptable in our institution. Disciplinary actions will be taken on students found guilty of such practice as established in Chapter V, Article 1, Section B.2 of the Student's Rules and Regulations handbook.

INTER AMERICAN UNIVERSITY HAS VERY STRICT REGULATIONS REGARDING PLAGIARISM (USING THE IDEAS OR WORDS OF OTHERS WITHOUT GIVING PROPER CREDIT), SO IT IS IMPORTANT THAT YOU SPECIFICALLY READ CHAPTER 5, ARTICLE 1, SECTION B.2C OF THE STUDENT' RULES AND REGULATIONS HANDBOOK. THIS SECTION CLEARLY EXPLAINS WHAT PLAGIARISM IS. IN ADDITION, IT EXPLAINS THE TYPES OF SANCTIONS STUDENTS ARE EXPOSED TO WHEN THEY COMMIT IT.

C. USE OF ELECTRONIC DEVICES

CELLULAR (MOBILE) TELEPHONES AND ANY OTHER ELECTRONIC DEVICE THAT COULD INTERRUPT THE TEACHING-LEARNING PROCESS OR DISRUPT A MILIEU FAVORABLE FOR ACADEMIC EXCELLENCE WILL BE DEACTIVATED. CRITICAL SITUATIONS WILL BE DEALT WITH IN AN APPROPRIATE MANNER. THE USE OF ELECTRONIC DEVICES THAT PERMIT THE ACCESSING, STORING OR SENDING OF DATA DURING TESTS OR EXAMINATIONS IS PROHIBITED.

VIII. RESOURCES

a) Required Textbooks

Russell R.A & Taylor, B.W.. (2007). *Operations Management* (5th. ed.). John Wiley and Sons.

Wren, D. & Bedeian, A.G. (2009). *The Evolution of the Management Thought*, (6.th. Ed.) New York: John Wiley and Sons.

b) Audiovisual and Information Technology

Campus On-line Services at - <http://cai.inter.edu/>

- **ProQuest**
- **Infotrac (Database)**
 - Business and Company Resource Center
 - General Business File Internacional
 - Expanded Academic ASAP

IX. BIBLIOGRAPHY

Chopra Sunil & Meindl, Peter (2007). *Supply Chain Management: Strategy, Planning and Operation*. New York: Prentice-Hall, Inc., 2007.

Cochran, T.C. (1959). *The Puerto Rican Businessman: A Study in Cultural Change*. Philadelphia: University of Pennsylvania Press.

Very similar to the Chopra-Meindl book but more qualitative: *Designing and managing the supply chain: concepts, strategies, and case studies*. By David Simchi-Levi, Philip Kaminsky and Edith Simchi-Levi. published by McGraw-Hill, 2000.

Govil Manish. (2007). *Supply chain design and management: Strategic and tactical perspectives*.

Metters, Richard, King-Metters, Kathryn & Pullman, Madeline (2003). *Service Operations Management*. New York: Thomson.

Reid, R. Dan & Sanders, Nada R. (2009). *Operations Management and Integrated Approach*. (4th. Ed.) New York: John Wiley and Sons.

Rev. 2/2010