

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

**COURSE SYLLABUS**

**I. GENERAL INFORMATION**

COURSE TITLE	:	Introduction to Industrial Management
CODE AND NUMBER	:	BADM-6100
CREDITS	:	Three (3)
ACADEMIC TERM	:	
PROFESSOR	:	Luis Otero Gonzalez
OFFICE HOURS	:	
OFFICE TELEPHONE	:	
ELECTRONIC MAIL	:	

**II. DESCRIPTION**

Principles related to the effective use of the factors of production in manufacturing and non-manufacturing activities. Study of production organization and methods, facilities and the design of control systems of production operations.  
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 feed back 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.

#### **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. Basic Forecasting
  - a. Qualitative Forecasting
    - i. Group Consensus
    - ii. Market Research
    - iii. Delphi Method
  - b. Quantitative Forecasting
    - i. Moving Averages
      - 1. Simple Moving Averages

- 2. Weighted Moving Averages
    - ii. Exponential Smoothing
    - iii. Double Exponential Smoothing
    - iv. Seasonal Factor
    - v. Deseasonalization of Demand
    - vi. Linear Regression
    - vii. Forecast Error
      - 1. Mean Absolute Deviation
      - 2. Tracking Signal
      - 3. Mean Squared Error
- 9. 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
- 10. Elementary Inventory Management
  - a. Basic Elements of Inventory Management
  - b. Types of Inventory
  - c. Economic Order Quantity (EOQ)
  - d. Discounts
  - e. Reorder Point
- 11. Inventory Systems for Dependent Demand – MRP Type System
  - a. Master Production Schedule
  - b. MRP Systems
    - i. Purpose
    - ii. Advantages and Disadvantages
  - c. MRP System Structure
    - i. Demand for Products
    - ii. Bill Materials File
    - iii. Inventory Records File
    - iv. MRP Computer Programs
    - v. MRP Output Reports
  - d. MRP versus MRPII
  - e. Closed Cycle MRP
  - f. JIT versus MRP
  - g. Lot Sizing in MRP Systems
    - i. Lot-for-Lot
    - ii. Economic Order Quantity
    - iii. Least Total Cost
    - iv. Least Unit Cost
    - v. Choosing the Best Lot Size

- h. Review of Advanced MRP concepts
- 12. 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
- 13. 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

## **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 Textbook**

Reid, R. Dan & Sanders, Nada R. (2009). **Operations Management and Integrated Approach**. (4<sup>th</sup>. 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.

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.

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

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