

OMT 112
MATERIALS MANAGEMENT

COURSE DESCRIPTION

Prerequisites: None

Corequisites: None

This course covers the basic principles of materials management. Emphasis is on the planning, procurement, movement, and storage of materials. Upon completion, students should be able to demonstrate an understanding of the concepts and techniques related to materials management. *This course is a unique concentration requirement of the Operations Management concentration in the Business Administration program.* Course Hours Per Week: Class, 3. Semester Hours Credit, 3.

COURSE OBJECTIVES:

Upon completion of this course, the student will be able to:

- a. Recognize that processes are largely determined by the design of products.
- b. React to whatever processes exist.
- c. Recognize that Total Quality Management has become a major concept in operations management.
- d. Materials management includes all activities in the flow of materials from the supplier through to the consumer.
- e. Understand logistics, transportation, and distribution.
- f. Utilize the system's resources to achieve a desired customer service level.
- g. Have a good basic understanding of the factors influencing materials flow.
- h. See the relationship between the materials management system and the distribution and manufacturing system.
- i. Understand the body of knowledge, the concepts, and the vocabulary used in production and inventory control.
- j. Understand the important factors in purchasing.
- k. Understand forecasting.
- l. Understand the fundamentals of inventory management.
- m. Understand warehouse management, the elements of distribution systems including transportation, packaging, and material handling.
- n. Have knowledge of the factors influencing product and process design.
- o. Understand the philosophy and the environment of Just-in-Time manufacturing.
- p. Understand the elements of total quality management.

OUTLINE OF INSTRUCTION:

- I. Introduction to materials management
 - A. Operating environment
 - B. The supply chain concept
 - C. Materials management

- II. Production planning
 - A. Manufacturing planning and control system
 - B. Sales and operations planning (SOP)
 - C. Manufacturing resource planning (MRP II)
 - D. Making the production plan

- III. Master production scheduling
 - A. Relationship to production plan
 - B. Developing a master production schedule
 - C. Production planning, master production scheduling, and sales

- IV. Material requirements planning
 - A. Bills of material
 - B. Material requirements planning process
 - C. Using the material requirements plan

- V. Capacity management
 - A. Definition of capacity
 - B. Capacity planning
 - C. Capacity requirements planning (CRP)
 - D. Capacity available
 - E. Capacity required (load)
 - F. Scheduling orders
 - G. Making the plan

- VI. Production activity control
 - A. Data requirements
 - B. Order preparation
 - C. Scheduling
 - D. Load leveling
 - E. Scheduling bottlenecks
 - F. Implementation
 - G. Control
 - H. Production reporting

- VII. Purchasing
 - A. Establishing specifications
 - B. Functional specification description
 - C. Selecting suppliers
 - D. Price determination
 - E. Impact of material requirements planning on purchasing

- VIII. Forecasting
 - A. Demand management
 - B. Demand forecasting
 - C. Characteristics of demand
 - D. Principles of forecasting
 - E. Collection and preparation of data
 - F. Forecasting techniques

- G. Some important intrinsic techniques
 - H. Seasonality
 - I. Tracking the forecast
- IX. Inventory fundamentals
- A. Aggregate inventory management
 - B. Item inventory management
 - C. Inventory and the flow of material
 - D. Supply and demand patterns
 - E. Function of inventories
 - F. Objectives of inventory management
 - G. Inventory costs
 - H. Financial statements and inventory
 - I. ABC inventory control
- X. Order qualities
- A. Economic order quantity
 - B. Variation of the EOG model
 - C. Quantity discounts
 - D. Use of EOQ when costs are not known
- XI. Independent demand ordering systems
- A. Order point system
 - B. Determining safety stock
 - C. Determining service levels
 - D. Different forecast and lead-time intervals
 - E. Determining when the order point is reached
 - F. Periodic review system
 - G. Distribution inventory
- XII. Physical inventory and warehouse management
- A. Warehouse management
 - B. Physical control and security
 - C. Inventory record accuracy
- XIII. Physical distribution
- A. Physical distribution system
 - B. Interfaces
 - C. Transportation
 - D. Legal types of carriage
 - E. Transportation cost elements
 - F. Warehousing
 - G. Packaging
 - H. Materials handling
 - I. Multi-warehouse systems
- XIV. Products and processes
- A. Product development principles
 - B. Product specification and design

- C. Process design
 - D. Factors influencing process design
 - E. Processing equipment
 - F. Process systems
 - G. Selecting the process
 - H. Continuous process improvement (CPI)
- XV. Just-in-time manufacturing
- A. Just-in-time philosophy
 - B. Waste
 - C. Just-in-time environment
 - D. Manufacturing planning and control in a JIT environment
- XVI. Total quality management
- A. Quality
 - B. Total quality management (TQM)
 - C. Quality cost concepts
 - D. Variation as a way of life
 - E. Process capability
 - F. Process control
 - G. Sample inspection
 - H. ISO-9000
 - I. Benchmarking
 - J. JIT, TQM, and MRPII

REQUIRED TEXTBOOKS AND MATERIALS:

Tony, J.R. Introduction to Materials Management. Prentice-Hall, Inc. Upper Saddle River, New Jersey: 1998.

STATEMENT FOR STUDENTS WITH DISABILITIES:

Students who require academic accommodations due to any physical, psychological, or learning disability are encouraged to request assistance from a disability services counselor within the first two weeks of class. Likewise, students who potentially require emergency medical attention due to any chronic health condition are encouraged to disclose this information to a disability services counselor within the first two weeks of class. Counselors can be contacted by calling 686-3652 or by visiting the Student Development Office in the Phail Wynn Jr. Student Services Center, room 1309.