

**ISC 210**  
**OPERATIONS AND PRODUCTION PLANNING**

**COURSE DESCRIPTION:**

Prerequisites: Completion of curriculum mathematics requirement

Corequisites: None

This course includes the fundamentals of operations and production planning, forecasting, and scheduling. Topics include demand management, production planning and control, scheduling, and budgeting. Upon completion, students should be able to demonstrate an understanding of the concepts and techniques involved in operations and production planning. 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. Select and develop an appropriate loading and scheduling system for defined production characteristics and requirements.
- b. Identify necessary planning requirements for effective control.
- c. Recognize and describe fundamental concepts associated with Material Requirement Planning (MRP).
- d. Identify advantages and disadvantages of the zero inventory concept.
- e. Develop a master schedule for an assigned product.
- f. Design a stochastic simulation model for an assigned problem.

**OUTLINE OF INSTRUCTION:**

- I. The spectrum of manufacturing and service
  - A. The spectrum of manufacturing processes
  - B. Manufacturing choices
  - C. The product-process matrix
  - D. Distinguishing service operations from manufacturing
  - E. Service operations choices
  - F. A spectrum of services
- II. Flows, bottlenecks, and balances
  - A. Process and information flow diagrams bottlenecks
  - B. Line balance
- III. Bottlenecks in space and time: layouts and variability
  - A. Plant layouts and bottlenecks
  - B. Variability and bottlenecks: the queuing phenomenon

- IV. The workforce contribution
  - A. Worker comfort and safety
  - B. Methods improvement
  - C. Worker attitudes and effort
  
- V. Planning production
  - A. Factors in the design of production plans
  - B. Developing a good match between resources and demands
  
- VI. The question of control
  - A. More on dispatching
  - B. More on monitoring a production schedule
  - C. Managing the work-in-process
  - D. The Japanese contribution to production control
  - E. PERT
  
- VII. Managing inventories: material requirements planning
  - A. Objectives and philosophies of inventory management
  - B. A description of MRP: an anticipatory approach to the management of inventories
  - C. Material requirements planning as a management tool
  
- VIII. Managing inventories: time independent systems
  - A. The workings of non-time-phased inventory systems
  - B. Safety stocks
  
- IX. Making quality happen
  - A. What quality means
  - B. Improving quality
  - C. Management attitudes toward quality
  - D. Is the product design adequate?

**REQUIRED TEXTS AND MATERIALS:**

Heizer, Jay, and Barry Render. Principles of Operations Management. 6<sup>th</sup> ed. Upper Saddle River, NJ: Prentice-Hall, 2003.

**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.