

PTFE 3220 TEXTILE OPERATIONS AND MANAGEMENT METHODS¹

Credit: 3-0-3

Course Coordinator: Sundaresan Jayaraman

Prerequisites: PTFE 3200 or PTFE 3720

Catalog Description: Principles and applications of production and operations management to the textile enterprise, including process flow analysis, production planning and scheduling, optimization, quality management, and facilities planning².

Course Learning Objectives:

1. Learn the role of operations management in the successful operation of a global fiber/textile enterprise.
2. Learn the various manufacturing practices and paradigms (e.g., Just-in-Time manufacturing) and their applicability to the fiber/textile enterprise.
3. Learn the various tools, techniques and methodologies for analysis of enterprise operations including process flow analysis, total quality management, production planning and scheduling, optimization, and facilities planning and management.
4. Be well prepared to contribute effectively to the success of a fiber/textile enterprise by bringing a production/management systems perspective.

Textbook: Chase, Aquilano and Jacobs, Operations Management for Competitive Advantage, 11th Edition, , McGraw-Hill Book Company, New York, NY.

Other resources: Web sites and select readings assigned during the course.

Topical Outline:

1. The Polymer/Fiber/Textile Enterprise in the Global Marketplace
2. Polymer/Fiber/Textile Enterprise Operations Management
3. Product and Process Design
4. Quality Management and Continuous Improvement
5. Enterprise Strategy: Production Planning and Optimization
6. Shop-floor Scheduling and Management
7. Facilities Planning, Layout and Management
8. Supply Chain Management and Electronic Commerce
9. Financial Analysis of Enterprise Operations
10. Information Technology and Polymer/Fiber/Textile Enterprise Management

Course Outcomes: Specifically, at the end of the course the students will be able to:

1. Ability to set up and operate a fiber/textile enterprise from the ground-up including definition of product specifications for a specific end-use application, optimum location of the facility, facilities layout and cost computations [4, 5, 10].*
2. Ability to carry out material and machinery balance for setting up a fiber/textile enterprise to produce a desired quantity of product per unit time [3, 7].
3. Ability to implement total quality management systems for the successful operation of the fiber/textile enterprise [5, 10]
4. Ability to work in teams, evaluate fellow team members, make effective presentations, and prepare project reports [6, 9, 11].
5. Ability to contribute to the successful running of a global enterprise using Operations Management tools and techniques including choosing the right manufacturing paradigm (e.g., Just-in Time, Modular Manufacturing) for the company [5, 8, 12].

* Numbers in Brackets refer to PFE Program Outcomes to which the Course Outcomes relate.

¹ The scope of the course has been expanded to cover the polymer and fiber sectors of the industry to keep in line with the School's Program Objectives.

² The on-line catalog description does not reflect the broader scope of the current version of the course.

Topical Outline of Course

Cover the following major topics associated with operating a successful materials enterprise in the 21st Century.

1. The Materials Enterprise in the Global Marketplace
2. Materials Enterprise Operations Management
3. Product and Process Design
4. Quality Management and Continuous Improvement
5. Enterprise Strategy: Production Planning and Optimization
6. Shop-floor Scheduling and Management
7. Facilities Planning, Layout and Management
8. Supply Chain Management and Electronic Commerce
9. Financial Analysis of Enterprise Operations
10. Information Technology and Materials Enterprise Management