



Birla Institute of Technology & Science, Pilani
Hyderabad Campus

FIRST SEMESTER 2021-2021
Course Handout Part II

Date: 20-08-2021

In addition to part-I (General Handout for all courses appended to the time table) this portion gives further specific details regarding the course.

Course No. : ME F316
Course Title : MANUFACTURING MANAGEMENT
Instructor-in-Charge : AMRITA PRIYADARSHINI

Course Description:

Introduction to manufacturing systems, forecasting, life cycle concepts, facility location and layout planning, aggregate and batch production planning, scheduling, inventory control, material requirement planning, and enterprise resource planning, just-in-time and lean manufacturing, total quality management, supply chain management and Industry 4.0.

Scope and Objective of the Course:

Scope

- To provide a good fundamental concepts in manufacturing / operations management
- To promote the importance of decision making in manufacturing / operations management
- To study the decision making in design, planning and control of conversion process / manufacturing systems
- To develop decision making skills in conversion process / manufacturing systems
- To make proficient in manufacturing / operations management

Objectives

- To understand the role of operations management in the overall business strategy of the firm.
- To understand the interdependence of the operating system with other key functional areas of the firm.
- To identify and evaluate the key factors and the interdependence of these factors in the design of effective operating systems.
- To identify and evaluate a range of tools appropriate for analysis of operating systems of the firm.
- To identify and evaluate comparative approaches to operations management in a global context.
- To understand the application of operations management policies and techniques to the service sector as well as manufacturing firms.

Textbooks:

1. Heizer Jay, Render Barry and Rajashekhar, “Operations Management”, Pearson, New Delhi

Reference books

1. Russell R.S. & Taylor, B.W., “Operations Management: Quality and Competitiveness in a Global Environment”, 5th Edition, John Wiley and Sons (Asia) Pte. Ltd., 2006



2. Mahadevan B., “Operations Management : Theory and Practice”, 2nd Edition, Paerson, 2010
3. Chase, R.B., Aquilano, N.J., and Jacobs, F.R., “Operation Management for Competitive Advantage”, 11th Edition, McGraw-Hill,

Course Plan:

Lecture No.	Learning objectives	Topics to be covered	Chapter in the Text Book
1	<ul style="list-style-type: none"> To gain an understanding of the Production and Operations function for manufacturing and service organizations 	Introduction: Operations / manufacturing, decision making in an organization / conversion process	1 (T1)
3	<ul style="list-style-type: none"> Understand sources of demand variability Able to pick the appropriate forecasting model 	Forecasting: Types, importance, steps, approaches, methods	3 (T1)
7	<ul style="list-style-type: none"> Understand the concept of product life cycle Understand the application of the steps in product design Apply the concept for generation of new idea 	Product planning: Product strategy options, product life cycle, product development, Quality function deployment, application of decision trees to product design	4 (T1)
9	<ul style="list-style-type: none"> Understand the strategic importance of process selection Can explain the influence that process selection will have on organization's performance 	Process planning: Process design, process technologies, process analysis and design, selection of equipment and technology	6 (T1)
11	<ul style="list-style-type: none"> Identify and explain major factors that affect locations decisions Able to select appropriate methods of evaluating location 	Facilities location: Selecting the geographic region, costing alternative locations, scoring models, geometric models, Locating multiple facilities, Location of facilities on networks	7 (T1)



	alternatives		
13	<ul style="list-style-type: none"> Understand the strategic importance of layout decisions Able to discuss important issues related to various types of layout 	Layout of Facilities: Types of layout, process, product, hybrid, fixed-position and specialized layouts	8 (T1)
15	<ul style="list-style-type: none"> Describe methods of measuring capacity, planning capacity, and calculating capacity utilization. 	Capacity planning: Design and effective capacity, capacity and strategy, managing demand, Break even analysis, applying decision trees to capacity planning	Supplement (T1)
17	<ul style="list-style-type: none"> Explain what scheduling involves and the importance of good scheduling Discuss scheduling needs in job shops 	Scheduling: Hierarchy of planning decision, planning process, approaches for aggregate planning, master schedule, short-term schedules, control of schedules	12, 14 (T1)
20	<ul style="list-style-type: none"> Discuss the main requirements for effective inventory management Describe the role of basic models in controlling production capacity 	Inventory control: Functions of inventory, type of inventory, inventory management, inventory models	11 (T1)
23	<ul style="list-style-type: none"> Discuss various strategies involved in aggregate planning 	Aggregate Planning: Concepts, types of strategies	
25	<ul style="list-style-type: none"> Develop product structure Build a gross requirements plan 	Material Requirements Planning: MRP structure, MRP management, lot sizing techniques	13 (T1)
27	<ul style="list-style-type: none"> Understand the basic role of SCM and lean concepts in OM Understand the role of Industry 4.0 	Introductory concepts: SCM, Lean concepts and Industry 4.0	
30	<ul style="list-style-type: none"> Analyze and experiment with the processes in a virtual setting, reducing the time and cost 	Application of Flexsim: Overview of Flexsim, importance/need, features, applications	

	requirements associated with physical testing		
Total number of lectures = 40			

Evaluation Scheme:

Component	Duration	Weightage (%)	Date & Time	Nature of Component
Mid Semester Examination	90 minutes	30	18/10/2021 3.30 - 5.00PM	Open Book
Tutorial/ Case Studies/Surprise Quizzes		30		Open Book
Comprehensive Examination:	120 minutes	40	13/12 FN	Open Book

*The structure of this course is synchronized with the course Manufacturing Management (MF F242).

Chamber Consultation Hour: Will be announced in the class

Notices: Will be displayed on CMS/ Google Classroom only

Make-up Policy: Make-up will be granted **ONLY** in genuine cases with **prior permission**. The request application for make-up test must be reached to the Instructor-in-charge before commencement of the scheduled test (documentary proof is essential).

NOTE: The border cases in final grading will be decided based on mainly class room attendance and attentiveness in the classroom.

Academic Honesty and Integrity Policy: Academic honesty and integrity are to be maintained by all the students throughout the semester and no type of academic dishonesty is acceptable.

INSTRUCTOR-IN-CHARGE
MF F316

