Veer Narmad South Gujarat University
405 - Production & Operations Management

Course	405
Course Title	Production & Operations Management
Credit	4
Teaching per Week	4
Review / Revision	June, 2022
Minimum weeks / Semester	15 (Lectures, Guest Lectures, Case Study, Presentations, Group Assignments)
Medium of Instruction	English
Purpose of Course	This course provides students with knowledge and understanding of the nature and characteristics of operating systems in both the manufacturing and service sectors.
Course Objective	• To expose students to the basics of Operations Management • To understand basic management of manufacturing processes • They must appreciate that fundamentals of Operations Management are also applicable to production of services • They should also be exposed to quality assurance techniques.
Course Outcome	The students will get the knowledge and understanding of the nature and characteristics of operating systems in both the manufacturing and service sectors.

Course Content

Unit 1: Introduction to Production Management (15%)

- Definition of Production, Production Management, Operations, Operations Management,
- Difference between Production and Operations,
- Scope of Operations Management,
- Significance of Operations management,
- Different Types of Production Systems – Continuous, Intermittent and their sub-types with merits and demerits, Differentiate between Continuous and Intermittent production system

Unit 2: Plant Layout and Material Handling (15%)

- Plant Layout: Definition, Factors affecting choice of layout,
- Types of Plant layouts (Process, Product, Fixed Position, Cellular, Combination / Hybrid, Service Layout),
- Principles of a good plant layout,
- Material Handling: Definitions,
- Types of Material Handling Equipment,
- Principles of Material Handling

Unit 3: Inventory Control (With Numerical) (25%)

- Definition of Inventory and Inventory Control, Types of Inventory,
- Various Classification of Inventory Control: ABC Analysis, VED Analysis, FSN Analysis,
- Cost Associated with Inventory Control, Basic EOQ Model (With formula derivation) & Its Assumptions

- Minimum level, Maximum level, Reorder level, Lead time, Safety Stock,
- ERLQ model (with formula derivation) and its assumptions
- Numerical Problems on Basic EOQ Model, EOQ model with price discounts, Different inventory levels, Basic ERLQ model

Unit 4: Production Planning (With Numerical) (25%)

- Definition of Production Planning, Only Meaning of Aggregate Production Planning,
- Master Production Schedule: Definition, Flow Chart, General Explanation, Functions, Process
- Material Requirement Planning: Definitions, Flowchart, Inputs and Outputs
- Capacity Requirement Planning: Definition, Flow Chart, General Understanding, Inputs and Outputs, Methods of Capacity Adjustments,
- Scheduling: Definition, Concept of Backward and Forward, Priority Sequencing Rules
- Numerical on: Assignment Problems (Hungarian Method Upto Order 5 Matrix); Priority Sequencing Rules – SPT,LPT, EDD,CR,LS,FCFS; Johnson's Rule Problems ('n' jobs and 2 machines)

Unit 5: Work Study (With Numerical) (20%)

- Definition and Concept of Work Study, Basic Procedure of Work Study
- Method Study: Concept, Symbols used in Method Study
- Recording Techniques in Method Study (Operation Process Chart, Flow Process Chart, Two Handed Process Chart, Multiple Activity Chart, SIMO Chart only), Understanding of THERBLIGs
- Time Study (Work Measurement), Definitions, Process (Only Stop Watch Method), Various types of Allowances,
- Numerical Problems: Man-Machine Charts (Up to One Worker-One Machine; Upto 8 activities), Calculations of Standard Time, Normal Time and Allowances

Suggested Reading:

1. Operations Management- By Joseph Monks , McGrawHill
2. Operations management – By Everett Adams,PHI
3. Operations Management – By Martinich,PHI
4. Operations Management – By Krajewski,PHI
5. Operations Management – By William Stevenson, McGrawHill
6. Operations Management – By Russell &Taylor
7. Work Study: ILO, Geneva (For Unit5)
8. Production and Operations Management by K.Ashwatthappa