

PRODUCTION AND OPERATIONS MANAGEMENT

- **PURCHASING MANAGEMENT**
- **SUPPLY CHAIN MANAGEMENT**
- **ADVANCED PRODUCTION MANAGEMENT**
- **INTEGRATED MATERIALS MANAGEMENT**
- **INDUSTRIAL SAFETY**
- **WORLD CLASS MANUFACTURING**
- **PRODUCTIVITY MANAGEMENT**
- **INTERNATIONAL SUPPLY CHAIN MANAGEMENT**
- **TECHNOLOGY MANAGEMENT**
- **QUALITY MANAGEMENT**
- **STRATEGIC SOURCING**
- **SERVICE OPERATIONS MANAGEMENT**

PURCHASING MANAGEMENT

UNIT I

Introduction of purchase management - The role of Purchase in business -Relationship with Other Departments-Purchasing Controls Budgeting -Purchasing Ethics/ Public Relations.

UNIT II

Sources and quality of purchase management- Sourcing, and quality - Quality Control - Quantity Determination -Right Time, Price. Management of Surplus Materials.

UNIT III

Purchasing capital equipment- Contract Buying, Retail Buying, Engineering and Construction Contracting – Central, State and Institutional Purchasing, International Buying-Make or Buy, Negotiations, Purchasing Research, Value Analysis.

UNIT IV

Purchasing environment Changes in Environmental Conditions- Concept of Supply Chain Management-Strategic Purchasing Management.

UNIT V

Development of purchase and procurement Partnership- Sourcing, Network Sourcing- Benchmarking, Buying Decision Models-Purchasing Market Research-Role of Information Technology in Purchasing and the Portfolio - of Purchasing Skills.

SUPPLY CHAIN MANAGEMENT

UNIT I

Introduction to Supply Chain Management (SCM) – Concept of SCM – Components of SCM, an overview – Features of SCM – Strategic issues in SCM. SCM current scenario – Value chain management and customer relations management.

UNIT II

Customer focus in SCM – Demand planning, Purchase planning – Make or Buy decision – Indigenous and global sourcing Development and Management of suppliers – Legal aspects of Buying – Cost management – Negotiating for purchasing and sub contracting – Purchase insurance – Evaluation of Purchase performance (performance indices). Inventory management – Financial impact of inventory.

UNIT III

Manufacturing Scheduling – Manufacturing flow system – Work flow automation – Flexibility in manufacturing to achieve dynamic optimization – Material handling system design and decision. Ware housing and store keeping – Strategies of ware housing and store keeping – Space management.

UNIT IV

Logistics management – Role of logistics in SCM – Integrated Logistics Management – Transportation Design and decision – modals – Third party logistics services and providers – Facilities management (Port/Airport/ICDs) Channels of distribution – Logistics and customer service.

UNIT V

Information technology and SCM: EDI, ERP, Internet and Intranet, E-Commerce, Advanced Planning System, Bar Coding, Tele communication network, Video Conferencing and Artificial Intelligence. Best practices in Supply Chain Management – Organizational issues to implement SCM.

ADVANCED PRODUCTION MANAGEMENT

UNIT I

Impact of Technology on Production; Economics and Social Issues – Automation – Operation strategy and competitiveness – economy studies for Investment and replacement in Production Management.

UNIT II

Design of the systems and procedures: Product Decision and Process Selection – Design of facilities.

UNIT III

Design of Production, planning and control system – design on scheduling system – design of inventory system – design of maintenance system.

UNIT IV

Productivity Techniques – Application of quantitative models for production planning and control – process charts, network analysis.

UNIT V

Human aspects of production management – Methods of improving business process re-engineering – synchronous manufacturing – production planning and financial planning.

INTEGRATED MATERIALS MANAGEMENT

UNIT I

Introduction and basic concepts: Concept and significance of Integrated Materials Management Materials codification and computerization.

UNIT II

Materials planning and control: Inventory Planning and Control Models – Theory and Practice ABC, VED and other classifications EOQ – Reorder point – Lead Time Analysis – Safety – Stocks –P and Q System – S System. Materials Requirement Planning (MRP), MRP II, Inventory Audit.

UNIT III

Purchasing Fundamentals – Make or Buy – Source Selection – Vendor Rating – Value Analysis. Purchase Negotiations – Purchase Timing – Purchase Contracts – Purchase Insurance Purchasing Capital Goods, Seasonal Goods, Imported Goods Deferred Payment Schemes – Lending Institutions – Leasing Trends. Governmental buying – D.G.S. &D – Evaluation of Purchase Performance.

UNIT IV

warehousing and stores: Location and Layout of Warehouses and stores – Different typical models. Stores Procedures and Records for Receipt, Inspection, Issue, Reorder checking – Kardex Sores Accounting, RFID System.

UNIT V

Miscellaneous topics: Practical problems in Management of Dead Stocks, Surplus stocks and scraps – Evaluation of Stores Performance. Materials Handling and Transportation. Warehouse security.

INDUSTRIAL SAFETY

UNIT I

Safety Management - Concept of Safety, Applicable areas, unsafe actions and Conditions. Responsibility of Safety - Society, Govt., Management, Union and employees. Safety Officer - Duties and responsibilities of safety officer. Safety Committee - Membership, Functions and Scope of Safety committee.

UNIT II

Motivation and training of employees for safety in Industrial operations. disaster Management - Designing, Importance and implementation of Disaster Control Action Plan.

UNIT III

Industrial Accidents - Causes and effects of Industrial accidents. Accident Radio Theory, Cost of Accidents, Impact of Accidents on employees, Union, Management and Society and their role and responsibility in the prevention of accidents.

UNIT IV

Legal Provisions regarding safety, Accident prevention and Compensation to affected employees under Factories Act-1948, Factories act amendment 1987, The Mines Act-1952, The Workmen Compensation Act-1923, ESI Act, Public Liabilities Insurance Act-1991, Fatal Accident Act.

UNIT V

Functions of National Safety Council. Accidents, recording, Investigation analysis and reporting. Fire- basic Chemistry/ Mechanism, Reasons, prevention and types of fire, extinction of fire, Loss prevention.

WORLD CLASS MANUFACTURING

UNIT I

World class Excellent organizations – American and Japanese Companies Deming Award, Malcom Baldrige National Quality Award – Indian Quality Management Awards

Globalization – Global Companies – Models for manufacturing excellence – Business Excellence.

UNIT II

Concepts of benchmarking, bottleneck and best practices, Best performers – Gaining competitive edge through world class manufacturing – Value added manufacturing – eliminating waste – Toyota Production System – Case Study

UNIT III

Improving Product and Process Design – Lean Production – SQC , FMS, Rapid Prototyping , Poka Yoke , 5-S ,JIT, Product Mix , Optimizing , Procurement and stores practices , Total Productive maintenance, Visual Control.

UNIT IV

Adding value to the organization – Organizational learning – Root Cause analysis techniques– People as problem solvers – New organizational structures. Associates – Facilitators – Team work – Motivation and reward in the age of continuous improvement.

UNIT V

Typical characteristics of WCM companies: Performance indicators – world class Performance meaning – Six Sigma philosophy. Leading Indian companies towards world class manufacturing.

PRODUCTIVITY MANAGEMENT

UNIT I

Productivity concepts – Macro and Micro factors of productivity, productivity benefit model, productivity cycles.

UNIT II

Value Analysis and Value Engineering: Concept – Procedure – Application and role in Productivity.

UNIT III

Productivity Measurement at International, National and organization level, total productivity models. Productivity Management in manufacturing and service sector. Productivity evaluation models, productivity improvement model and techniques.

UNIT IV

Work Study: Importance of work study – Method Study and Work Measurement – Pioneers of Performance Measurement. Method and Method Study – Need for Method Study – Procedure of Method Study – Principles of Motion Economy. Techniques of Work Measurement including Estimating, Stopwatch Time Study, Predetermined Time Standards, Performance Rating – Allowances – Need for Allowances – Types of Allowances

UNIT V

Business Process Reengineering: Concept of BPR, process of BPR, prerequisites for effective BPR implementation, application of BPR in productivity improvement.

TPM: Meaning and objectives of TPM; Methodology of TPM, gains of TPM Implementation of TPM.

INTERNATIONAL SUPPLY CHAIN MANAGEMENT

UNIT I

International Logistics and Supply chain management: meaning and objectives, importance in global economy , Characteristics of global supply chains,; Supply chain relationship to business performance, -Key tasks of logistics and supply chain managers, Role of Government in controlling international trade and its impact on Logistics and supply chain

UNIT II

Supply chain as a competitive advantage, Global Supply chain strategy, Structuring supply chain capabilities, Business matching supply chain design with business strategy. Role and Importance of IT in Supply Chain Management.

UNIT III

Strategic importance of transport in global logistics, logistical objectives of transport, International Ocean Transportation, International Air Transportation, and International

Land Transportation: types, characteristics and salient features, intermodal transportation in international operations, factors influencing mode and carrier selection decision, Intermediaries and Alliances in Global Logistics, Meaning of 3 PL and 4 PL service providers, role in Global logistics, types of services, considerations for hiring 3PL and 4 PL service providers. Concept and need of outsourcing, determinants for outsourcing decisions, role of outsourcing in global supply chain management. The marketing and logistics interface, customer service and customer retention.

UNIT IV

Planning the global supply chain, Network design for global supply chain management, Risk management in the global context, Measuring logistics cost and performance. Benchmarking the supply chain, Performance measurement and evaluation in global supply chains a. Global trade environment: various trade blocks/FTZ and their impact on supply chain management, Customs and Regulations, Trade Documentation, International Contracts, Terms of Trade, Term of Payment, International Currency, INCO terms, Logistical packaging, containerization.

UNIT V

Decisions in Network design-strategic importance, location of plant, warehouse, facilities; capacity and number of warehouses: Factors influencing network design decisions. Approaches to Inventory Management in Global Supply Chain Management;; Distribution Resource Planning; Symptoms of poor Inventory Management, Modelling in Supply chain: inventory models, safety stock determination for service level, and lead time; forecasting models, routing problem. Bullwhip Effect. Dimensions of Performance Metrics, Approaches/tools for Performance Measurement.

TECHNOLOGY MANAGEMENT

UNIT I

Concept and meaning of technology, Evolution and growth of technology, role and significance of management of technology, Impact of technology on society and business, Forms of technology: process technology and product technology.

UNIT II

Competitive advantages through new technologies: product development – from scientific breakthrough to marketable product – Role of Government in Technology Development. Linkage between technology, development and competition, Managing research and development (R&D), Managing Intellectual Property.

UNIT III

Technological Forecasting: Exploratory: Intuitive, Extrapolation, Growth Curves, Technology Monitoring, Normative: Relevance Tree, Morphological Analysis, Mission Flow Diagram. Technology Choice, Technological Leadership and Follower ship, Technology Acquisition. Meaning of Innovation and creativity, innovation management

UNIT IV

Technology strategy: concept, types, key principles, framework for formulating technology strategy, Technology forecasting: techniques and application. Technology diffusion and absorption: Rate of Diffusion; Innovation Time and Innovation Cost, Speed of Diffusion. Project management in adoption and implementation of new technologies.

UNIT V

Technology Transfer Management: Technology transfer-process; outsourcing strategic issues; joint ventures, technology sourcing. Human Aspects in Technology Management: Integration of People and Technology, Organizational and Psychological Factors, Organizational Structure. Social Issues in Technology Management: Technological Change and Industrial Relations, Technology Assessment and Environmental Impact Analysis.

TOTAL QUALITY MANAGEMENT

UNIT I

Quality, Strategic Planning, and Competitive Advantage: Brief History -Developments in Quality. Definitions of Quality. Quality in Manufacturing and Service Systems. Economic Issues - Quality and Price - Quality and Market Share – Quality and Cost - The Taguchi Loss Function. Quality and Competitive Advantage. Perspectives on Leadership for Quality.

UNIT II

Principles of Total Quality Management: Introduction - Elements of Total Quality Management. Malcolm Baldrige National Quality Award Award Criteria. Benefits of Total Quality Management. The Deming Management Philosophy – Profound Knowledge – The Impact of Profound Knowledge – Deming's 14 Points for Management. The Juran Philosophy – The Juran Quality Trilogy. The Crosby Philosophy. Ishikawa Fish Bone diagram – Nominal Group Technique – Quality Circles – Flow Charts – Pareto Analysis.

UNIT III

Customer Focus: The Customer-Driven Quality Cycle – Identifying Customer Needs – Achieving Customer Requirements in Production – Implications of the Customer-Driven Quality Cycle. Quality Function Deployment – The Quality Function Deployment Process - Building the House of Quality – Implementing Quality Function Deployment. Designing Quality into Services - Service Needs Identification – Service System Design. Customer Satisfaction Measurement Techniques – Customer Relationship Management Techniques.

UNIT IV

Reliability: Concept and Components – Concepts of failure – Reliability of system – Success and Failure models in series and parallel – Methods of achieving higher reliability – Concept of maintainability and availability – Comparison with reliability

UNIT V

Quality Management Standards: The ISO 9001:2000 Quality Management System Standards. Auditing Techniques - Planning for an audit - Developing a Check-list - Conducting an Audit - Writing an Audit Report - Auditor ethics.

STRATEGIC SOURCING

UNIT I

Evolution of Sourcing: Purchasing a dynamic profession - Origins of Purchasing and transition to supply management – value adding benefits and strategic focus. Five Major Developments – cross functional teams, supply chain and supply networks, supply alliances, strategic sourcing, e-procurement, Global Sourcing.

UNIT II

Purchase Management: Purchasing activity, determining purchasing quantities, Methods of Buying, Just in Time Purchasing. Contract & Procedure of Leasing, Concept of Hire-Purchase. Stores Management: Functions and Importance of Stores Management, Organization of stores, Stores Procedure, Replenishment system, Stores Documentation.

UNIT III

Buyer-Supplier Relationships: Transformation of buyer-supplier relationships, types of buyer supplier relationships, Supplier's perspective, Developing and managing collaborative and alliance relationships – joint problem solving, quality at the source, information sharing. Supplier selection, certification, evaluation. The role of power, Portfolio approach, new skills and attitudes required. E commerce and the right type of relationship, Relationships of the future – JIT in the supply management

UNIT IV

Cross-Functional Teams: Cross-functional teams and supply management activities, benefits of cross-functional teams, challenges of cross-functional teams, prerequisites to success of cross-functional teams.

UNIT V

Supply Management and Social Responsibilities: Diversity suppliers, Protecting our physical environment, values in the workplace.

SERVICE OPERATIONS MANAGEMENT

UNIT I

Introduction to Service Delivery Operations & Strategy. Formulating Strategy New Service Development & Managing Service.

UNIT II

Designing the Service Delivery System, Selecting the Location for a Service Operation, Managing the Service Experience. Service Site Performance Evaluation. Outsourcing and off sourcing.

UNIT III

Waiting Time Management, Front-Office / Back-Office Interface, Team Meeting/Work Time, Using Technology in Service Operations

UNIT IV

Revenue Management, Service Quality & Strategy, Six Sigma for service process improvement, Managing Capacity and Demand, Yield Management.

UNIT V

Queuing Models and Capacity Planning, Tools for Managing service. Case study in Service Operations Management.