

Major Mandatory
Title of the Course: Production and Operations Management

Semester: I	Credits: 4	Subject Code: CMAJCPOM123528	Lectures: 60
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Course Outcomes:
At the end of this course, the learner will be able to:
<ul style="list-style-type: none"> ● CO1 – Describe the concepts and functions of Production and Operations Management ● CO2 – Identify and explain the Product, Process and Work Designs ● CO3 – Summarise the process of Purchasing and Material Handling ● CO4 – Recognise and state the role of Competitive Practices in effective Production and Operations Management.

Unit 1: Introduction to Production and Operations Management	15
<ul style="list-style-type: none"> ● Production and Operations Management: Significance, Characteristics of Modern Production and Operation Function, Manufacturing versus Service Operations, Functions of Production Management, Role of effective Logistics Management, Recent Trends in Production and Operations Management ● Facility Layout: Factors influencing Facility Layout, Types of Facility Layout, Cellular Manufacturing ● Production Planning and Control: Functions of Production Planning and Control, Capacity Planning and Aggregate Planning, Assembly Line Balancing ● Service Operations: Types of Service Operations, Scheduling for Services ● Activity: Case Study 	

Unit 2: Product, Process and Work Design	15
<ul style="list-style-type: none"> ● Product Design: Concept, Characteristics of a good Design, Approaches to a good Design, Stages of Product Design and Development, Design for Manufacture ● Process Planning and Design: Make or Buy, Major Process Decisions, Planning Process of Service Operations ● Design of Work Systems: Types of Manufacturing Systems, Work Study, Involvement of Workers' Union, Application of Work Study to Office Work ● Assignment: Case Study and Presentation 	

Unit 3: Purchasing and Materials Management	15
<ul style="list-style-type: none"> ● Material Requirement Planning (MRP): Objectives, Operation of the Manufacturing Resource Planning System, MRP in Services, Enterprise Resource 	



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<p>Planning: Features, SAP system, Features</p> <ul style="list-style-type: none"> ● Scientific Purchasing: Purchase Procedure, Global Sourcing, Value Analysis ● Storage System: Functions of Storage Department, Classification of Materials ● Inventory Management: Inventory Control Techniques ● Assignment: Case Study and Report Writing 	
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<p>Unit 4: Competitive Practices in Production Management</p> <ul style="list-style-type: none"> ● Industry 4.0: Concept, Impact of Industry 4.0 on Productivity, Challenges in Industry 4.0 ● Artificial Intelligence (AI), Machine Learning (ML) and Deep Learning (DL): Concept ● Relationship between AI, Big Data, BlockChain Technology and Cloud Storage ● Design of Experiments (DOE) with AI ● Role of AI in HIRA (Hazard Identification and Risk Analysis) ● Role of AI in OHSMS (Occupational Hazard and Safety Management System) ● Role of AI in Predictive Maintenance ● AI and Total Waste Reduction: Lean Operations; AI in Supply Chain Management Cycles, Use of AI in Smart Waste Management and Recycling ● AI in ERP Software: Benefits, AI and JIT Systems ● Green Manufacturing: Green Processes, Eco-efficiency, ISO 14000: Global Environment Management Standards ● Role of AI in Good Manufacturing Practices & Good Housekeeping ● Role of AI in International Operations Management ● Assignment: Case Study and Presentation 	15
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<p>Recommended Text Books:</p> <ul style="list-style-type: none"> ● Jhamb. L.C. Production & Operations Management. Everest Publishing House: Pune; 2022.

<p>Reference Books:</p> <ul style="list-style-type: none"> ● Chary S. N. Production and Operations Management. Tata McGraw-Hill Publishing Co. Ltd.: New Delhi; 2019. ● Dr. KelkarBhooshan, MoneKaustubh R. &KelkarVyom, Future Tense? (An Introduction to "Industry 4.0"), Neuflex Talent Solutions, Pune, 2019. ● Aswathappa K. &Bhat K. Shridhara. Production and Operations Management, Himalaya Publishing House: Mumbai; 2015.
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