	L21C06	Materials Management	L	T	P	J	S	C	
			3					3	
	Course owner	Dept. of Operations	Syllabus version				1.0		
	Course Pre-requisite(s)	NIL	Contact hours				40		
	Course Co-requisite(s)	NIL	Date Approved						
	Alternate Exposure								

Materials Management involves inventory management, value analysis, storekeeping, maintenance and upkeep of the inventories in hand and process. The objective of Materials Management is to provide an unbroken chain of components for production to manufacture goods on time for the customers.

Materials management is concerned with management functions supporting the complete cycle of material flow, from the purchase and internal control of production materials to planning and control of work in process, to warehousing, shipping and distribution of the finished product. The following are the primary objectives of Materials management- Low Prices, Lower Inventories, Reduction in Real Cost, Regular Supply, Procurement of Quality Materials, Efficient handling of Materials and Enhancement of firm's goodwill.

Therefore, this course is designed to:

- Understand the utilization of materials management from the basic understanding to purchasing and inventory management in the system.
- Know the role of planning of material requirement, quality control and standardization of inventory.

Course Objectives

1. Understand the basics of materials management and trade off between customer service and cost.
2. Identify the roles of purchasing, negotiation, bargaining and the vendor relations.
3. Apply the knowledge in forecasting the demand, material requirement planning and bill of materials.
4. Analyze and control the quality of material.
5. Evaluate strategies for optimization of the handling and transportation cost.

UNIT - I Introduction to Material Management

No of Hours: 8

Introduction: Materials Management - Evolution, Importance, Scope and Objectives - Interface with other functions. Concept of Logistics and Supply Chain Management and evolution to 4PL- Supply Chain Management-Objectives, Components, Significance, Trade off Customer Service & Cost.

Learning Outcomes:

After completion of this unit, the student will be able to


- Explain the role of materials management in an manufacturing industry L2
- Illustrate the dimensions - supply chain management, third party logistics, and fourth party logistics. L2
- Analyse the interface of materials management with other related functions. L4
- Evaluate the crucial role of materials management in taking competitive advantage. L5
- Apply different strategies for making a trade off among cost, customer service levels and quality. L3

Pedagogy tools: Blended learning, case study, video lectures, self-reading

UNIT - II Purchasing in Materials Management

No of Hours: 8

Purchasing: Purchasing in Materials management- system concept- purchasing and procurement activities under Materials management- Value Analysis and value Engineering- Purchasing and quality Assurance- Purchase Cycle- Negotiation & Bargaining- Vendor relations- Purchasing Methods-Global Sourcing-Stores-Functions, Importance, Organization of stores & Stores layout. Stores procedure- documentation

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	Course Co-requisite(s)	NIL	Date Approved						
	Alternate Exposure								

Learning Outcomes:

After completion of this unit, the student will be able to

- Understand the activities related to material procurement. L2
- Explain the role of value engineering and purchase cycle. L2
- Evaluate the value analysis and quality assurance. L5
- Analyse the vendor selection. L4
- Analyse the global sourcing and the store layout. L4

Pedagogy tools: Blended learning, case study, video lectures, self-reading

UNIT - III Inventory Management & Material Requirement Planning No of Hours: 8

Inventory- Need of Inventory- Types of Inventory- Basic EOQ Model- EOQ with discounts- Classification of material- ABC Analysis- VED, HML, FSN, GOLF, SOS (Numerical expected on Basic EOQ, EOQ with discounts & ABC)

Material Requirement Planning (MRP)- Advantages over conventional planning (Order Point Method)- Input and output of MRP system- Forecasting- Overview of quantitative and qualitative methods of forecasting- Master Production Schedule- Bill of Materials- BOM Explosion- Material flow in MRP.

MRPII. Concept of ERP. (Numerical likely on BOM Explosion, estimating Net requirements)

Learning Outcomes:

After completion of this unit, the student will be able to

- Analyse the reorder point and economic order quantity. L4
- Understand the importance of material classification and can classify the materials by various techniques. L2
- Evaluate the material requirement planning and strategies to meet demand. L5
- Understand the master production schedule and evaluate the bill of material. L2
- Apply the concept of ERP for material management. L3

Pedagogy tools: Blended learning, case study, video lectures, self-reading

UNIT - IV Quality Control of Material No of Hours: 8


Quality control of material: Incoming material quality control- statistical quality control- governmental purchasing practices and procedures- Inventory control & Cost Reduction techniques: Inventory turns ratios- Standardization- need and importance. Codification- concept, benefits. Value Engineering and Value Analysis- concept and process.

Learning Outcomes:

After completion of this unit, the student will be able to

- Understand the role of quality control in material management. L2
- Apply the statistical quality control techniques. L3
- Analyse the optimization of cost of material. L4
- Understand the process of value analysis. L2
- Apply the cost reduction techniques in real cases. L3

Pedagogy tools: Blended learning, case study, video lectures, self-reading

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	Course Co-requisite(s)	NIL	Date Approved						
	Alternate Exposure								

UNIT - V Material Handling and Storage Systems

No of Hours: 8

Materials handling and storage systems, Physical distribution logistics - transportation, Traffic and claims management - operations research and related techniques- Principles of Materials Handling system - Materials Handling Equipment- Safety issues.

Learning Outcomes:

After completion of this unit, the student will be able to

- Understand the need for material handling and storage systems. L2
- Apply the operations research techniques. L3
- Explain the material handling equipments. L2
- Understand the principles of material handling system. L2
- Analyse the safety issues in material management. L4

Pedagogy tools: Blended learning, case study, video lectures, self-reading

Textbook(s):

1. Datta A.K. Materials Management, Procedures Text and Cases, PHI Learning Private Limited.

Additional Reading

Reference Book(s):

1. Arnold, J. K., *Introduction to Materials Management*, 6th Ed., Pearson Education Limited.
2. Sharma, S. C., *Materials Management and Materials Handling*, Khanna Publishers.

Journal(s):

1. International Journal of Logistics Management, Emerald publisher.
2. Journal of Purchasing and Materials Management, Wiley publisher.

Website(s)

1. www.poms.org

	Programme Objectives (POs)												PSOs			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
CO1	3	0	0	0	0	0										
CO2	3	1	2	0	1	2										
CO3	0	3	0	3	0	0										
CO4	3	0	0	2	0	2										
CO5	0	0	3	0	2	0										

1-Low, 2- Medium and 3- High Correlation