

GUJARAT TECHNOLOGICAL UNIVERSITY

PACKAGING TECHNOLOGY (58)

MATERIALS MANAGEMENT

SUBJECT CODE: 715804

SEMESTER: I

Type of Course: Major Elective 1

Prerequisite: Nil

Rationale:

This course will introduce the basics about Materials Management to the students.

Teaching Scheme			Credits	Examination Marks						Total Marks
L	Tutorial /Presentation	P		Theory Marks		Practical Marks				
			ESE(E)	PA(M)	PA(V)		PA(I)			
					ESE	OEP	PA	RP		
3	2	2	5	70	30	20	10	20	00	150

Sr. No.	Topic	Hours	% Weightage
1	Introduction to Materials Management: Importance, Objectives, Scope and Functions of material management, Material management organization, Classification of packaging materials, Integrated approach to material management, Role of material management techniques in improving material productivity.	06	12
2	Purchasing management: Objectives and functions, Purchasing cycle, Sources of supply, Vendor rating, Buyer-vendor relations, Right pricing, Purchasing of capital equipment's, Legal aspects of purchasing. International purchasing – procedures and documentation, Make or buy decisions.	10	25
3	Inventory Management & Control: Demand forecasting, principle of forecasting, forecasting techniques, functions of inventories, ABC, VED, XYZ, SDE and FSN system of selective inventory control, Classification of inventory, Inventory models- Deterministic and probabilistic.	10	25
4	Materials planning: Introduction, Factors affecting material planning, Master production schedule, Material planning in push and pull system, Material Requirement Planning-I and Material Requirement Planning-II systems, Introduction to Enterprise Resource Planning.	08	15
5	Introduction to JIT: JIT philosophy, JIT environment, Elements of JIT, Manufacturing planning and control in JIT environment, Kanban.	04	08
6	Store and Warehouse Management:	07	15

	Stores function, Location & Layout of stores, Management of receipts and issue of materials from stores, Materials handling in stores, Safety, classification and coding & case study, Warehousing costs & distribution.		
	Total	45	

Term Work:

The term work shall be based on the topics mentioned above.

Practical / Viva:

The candidate shall be examined on the basis of term-work.

Text Books:

1. Arnold, Chapman: Introduction to Materials Management: Pearson, 5th edition, 2008.
2. Gopalkrishnan&Sundarsan: Material Management: An Integrated Approach, Prentice Hall of India Private Limited, New Delhi, 2003.
3. Gopalakrishnan. P, Handbook of Materials Management, Prentice Hall of India, 2005.
4. Dr. L. C. Jhamb, “Materials and logistics Management”, Everest publishing house.
5. A. K. Dutta: Materials Management: Procedures, Text and Cases, Prentice Hall of India Private Limited, New Delhi, 2nd edition, 2004

Reference Books:

1. Tersine R.J, “Material Management & Inventory Control”, Worth Holand, New York, 1976
2. Lamer Lee and Donald W. Dobler, Purchasing and Material Management, Text and cases, Tata McGraw Hill, 2006.

Course Objectives:

1. To apply knowledge of materials management in practice.
2. To understand various tools of materials management.

Course Outcome:

After learning the course the students should be able to:

Make decision-making for effective and efficient purchase, storage, inventory control and flow of materials in manufacturing and service organizations.

List of Experiments:

1. Exercise on purchase management
2. Exercise on ABC analysis & other selective inventory control techniques.
3. Exercise on selection of sources & vendor rating.
4. Exercise on inventory control models.
5. Exercise on EOQ model.
6. Exercise on inventory model with price break.
7. Exercise on JIT in different manufacturing environment

Design based Problems (DP)/Open Ended Problem:

1. Design of material flow system in industry.
2. Design of inventory control model in industry.

List of Open Source Software/learning website: www.nptel.ac.in