GUJARAT TECHNOLOGICAL UNIVERSITY

INDUSTRIAL ENGINEERING
MATERIALS MANAGEMENT
SUBJECT CODE: 2161501
B.E. 6th SEMESTER

Type of course: Core

Prerequisite: No specific pre-requisite, primary understanding of business management concepts.

Rationale: The subject intends to equip students with updated knowledge of modern materials management concepts and aims to develop their functional expertise in the store, purchase and inventory management discipline. To increase the profitability of industry, the Course intends to prepare the fleet of students equipped with latest tools and techniques of materials management so that they can face the challenges arising out of present scenario of competitiveness due to globalization of economy.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks						Total Marks
L	T	P	C	Theory Marks			Practical Marks			
				ESE (E)	PA (M)		ESE (V)		PA (I)	
					PA	ALA	ESE	OEP		
4	0	2	6	70	20	10	20	10	20	150

Content:

Sr. No.	Content	Total Hrs	% Weightage
1	**Introduction to materials management :** Role, scope and importance of material control function, materials management in organization, cost aspects, materials management organization, specifications of materials, standardization and variety reduction, waste control, materials research, incoming materials control	**10**	16%
2	**Stores Management:** Layout of stores and warehouse, material handling in stores, physical control of stocks : obsolete, surplus and scrap Management, accounting and record keeping of stores, classification, coding and codification systems, Case studies	**18**	28%
3	**Purchasing Management:** Purchasing functions and purchasing systems, ABC analysis and VED analysis in purchasing, make or buy decision, selection of sources and vendor rating, legal aspects of purchasing, materials budget, organization for buying. Imports Exports policy, procurement in shortage situation, estimation of dependent and independent demands, lead time analysis, buffer stock, materials requirement planning for organization, Purchasing and quality assurance, International buying and import purchasing, Case studies	**22**	34%
4	**Inventory models:** Inventory management & control systems, EOQ, concepts, type of	**14**	22%

	Inventory models-deterministic and probabilistic.		

Suggested Specification table with Marks (Theory) :

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
30	40	10	10	5	5

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1. Materials Management Procedures, text and cases by AK Datta, PHI Publication
2. Material management an integrated approach by Gopalkrishnan & Sundarsan, PHI Publication
3. Materials management by Immer D.S.
4. Rationalizing Materials management – Datta A. K.
5. Materials management and OR in India by P.G.Manon
6. Materials management by N.K.Nair.
7. Purchasing principles & Techniques by Buity, P.J.H.and Farmer
8. Purchasing management by Borry H.A.
9. Inventory management in India by R. S. Chadda
10. Inventory management by Enrick N.L.
11. Stores accounts & stores control by Burten J.H.

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. Study of codification
2. Study of standardization
3. Study of obsolete, surplus, & scrap management
4. Study of record keeping of stores.
5. Study of purchase management
6. Study of make or buy decision.
7. Study of ABC analysis & other selective inventory control techniques.
8. Study of selection of sources & vendor rating.
9. Study of inventory control fixed orders quantity.
10. Study of EOQ with discounts.
11. Study of multiple price break problem.
12. Study of sensitivity analysis.

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

ACTIVE LEARNING ASSIGNMENTS: Preparation of power-point slides, which include videos, animations, pictures, graphics for better understanding theory and practical work – The faculty will allocate chapters/ parts of chapters to groups of students so that the entire syllabus to be covered. The power-point slides should be put up on the web-site of the College/ Institute, along with the names of the students of the group, the name of the faculty, Department and College on the first slide. The best three works should submit to GTU.