

GUJARAT TECHNOLOGICAL UNIVERSITY

MECHANICAL (ADVANCE MANUFACTURING SYSTEM) (50)

LOGISTIC AND SUPPLY CHAIN MANAGEMENT

SUBJECT CODE: 2725001

SEMESTER: II

Type of course: Engineering Science

Prerequisite: None

Rationale: This course is designed to familiarize students about supply chain and supply chain management; to develop an understanding of the drivers of supply chain performance, to become familiar with analytical tools necessary to develop solutions for a variety of supply chain management & design problems, to understand the application and limitations of simple decision rules in the context of supply chain analysis in the real world. This course examines logistics systems that support the physical supply of raw and semi-finished materials to a firm, the planning and control of operations, and the delivery of the products or services up to the final customers, with the objective of achieving a sustainable competitive advantage and optimizing the value and the long term performance of the firm and the supply chain as a whole.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks						Total Marks
L	T	P		Theory Marks		Practical Marks				
			ESE (E)	PA (M)	ESE (V)		PA (I)			
					ESE	OEP	PA	RP		
3	0	2 [#]	4	70	30	20	10	10	10	150

Content:

Sr. No.	Content	Total Hrs.	% Weightage
1	Understanding the Supply Chain: What Is a Supply Chain?, The Objective of a Supply Chain, The Importance of Supply Chain Decisions, Decision Phases in a Supply Chain, Process View of a Supply Chain	4	10%
2	Supply Chain Performance: Achieving Strategic Fit and Scope: Competitive and Supply Chain Strategies, Achieving Strategic Fit, Expanding Strategic Scope	4	10%
3	Supply Chain Drivers and Metrics: Drivers of Supply Chain Performance, Framework for Structuring Drivers, Facilities, Inventory, Transportation, Information, Sourcing, Pricing, Obstacles to Achieving Fit	4	10%
4	Designing Distribution Networks: The Role of Distribution in the Supply Chain, Factors Influencing Distribution Network Design, Design Options for a Distribution Network	6	10%
5	Network Design in the Supply Chain: The Role of Network Design in the Supply Chain, Factors Influencing Network Design Decisions, Framework for Network Design Decisions, Models for Facility Location and Capacity Allocation	6	15%

6	Demand Forecasting in a Supply Chain: The Role of Forecasting in a Supply Chain, Characteristics of Forecasts, Components of a Forecast and Forecasting Methods, Basic Approach to Demand Forecasting, Time-Series Forecasting Methods, Measures of Forecast Error	6	15%
7	Aggregate Planning in a Supply Chain: The Role of Aggregate Planning in a Supply Chain, The Aggregate Planning Problem, Aggregate Planning Strategies	6	15%
8	Coordination in a Supply Chain: Lack of Supply Chain Coordination and the Bullwhip Effect, The Effect on Performance of Lack of Coordination, Obstacles to Coordination in a Supply Chain, Managerial Levers to Achieve Coordination, Building Strategic Partnerships and Trust Within a Supply Chain, Continuous Replenishment and Vendor-Managed Inventories, Collaborative Planning, Forecasting and Replenishment (CPFR)	6	15%

Reference Books:

1. Supply Chain Management: Strategy Planning and Operation, Chopra Sunil, Meindl Peter and Kalra D. V., Pearson Education
2. Simchi-Levi, D., P. Kaminski and E. Simchi-Levi, 2003, Designing and Managing the Supply Chain: Concepts, Strategies and Case Studies, 2nd Edition, Irwin, McGraw-Hill.
3. Supply Chain Management Theories and Practices (Set) by R.P. Mohanty and S. G. Deshmukh , Biztantra Publication.
4. Logistics and Supply Chain Management, Martin Christopher, Richard Irwin
5. Supply Chain Management: Janat Shah, Pearson Education.
6. Principles of Supply Chain Management, Joel Wisner, G. Keong, Cengage Learning

Course Outcome:

Having successfully completed the course, the student will be able to:

1. Understand the effect of supply chain on business operations
2. Apply theory and practices to the design and management of supply chains
3. Be able to formulate basic supply network distribution models
4. Express familiarity with different forecasting tools and understand their use
5. Develop models for planning and managing inventories
6. Understand the importance of transportation and logistics in the supply chain and become familiar with ways in which transportation problems are modeled

List of Tutorials/Presentations:

Following each chapter of the course, the students will have an assignment that consists of a series of review questions and problems and/or a case study, with the purpose of practicing and assessing the understanding of the topics taught in class. The assignments can be done individually, or by groups of students as instructed by subject teacher.

Review Presentation (RP): The concerned faculty member shall provide the list of peer reviewed Journals and Tier-I and Tier-II Conferences relating to the subject (or relating to the area of thesis for seminar) to the students in the beginning of the semester. The same list will be uploaded on GTU website during the first two weeks of the start of the semester. Every student or a group of students shall critically study 2 papers, integrate the details and make presentation in the last two weeks of the semester. The GTU marks entry portal will allow entry of marks only after uploading of the best 3 presentations. A unique id number will be generated only after uploading the presentations. Thereafter the entry of marks will be allowed. The best 3 presentations of each college will be uploaded on GTU website.