



GITAM INSTITUTE OF MANAGEMENT (GIM)
Gandhi Institute of Technology and Management (GITAM)
(Declared as Deemed to be University u/s 3 of UGC Act. 1956)
Visakhapatnam – 45.

Course Code: L19C25	Course Title: Logistics Network Design	
Semester: V	Course Type: Compulsory	Credits: 4
Home Programme(s): BBA (Logistics) 2019-22	Batch/Academic Year: 2019-22	
Course Leader: Dr. Pradeep Kumar Tarei		

Course description and learning objectives

The course deals with various approaches, and techniques used in the design and operation of logistics network of global supply chains. The material is taught from a managerial perspective, with an emphasis on where and how specific tools can be used to improve the overall performance of a logistics network. We place a strong emphasis on the development and use of basic and analytical knowledge to illustrate the underlying concepts involved in both intra- and inter-company logistical network operations.

Learning objectives:

- Students will be able to apply the Basic knowledge of design and configuration of the logistics network in the real-life situation.
- This subject will enable them to enhance their ability and professional skills in design and configuration of the logistics network.

On successful completion of this course, students will be able to:

	Course Outcomes	Assessment
CO1	Understanding the basic concepts of logistics networks, Structural components and models of logistics network.	A1
CO2	Understanding the real time issues of designing a logistics network to improve its performance.	A1,A2
CO 3	Understanding the data collection procedures for designing an effective logistics network system.	A2, A3
CO 4	Understanding the role, and use of optimization tools and techniques in logistics network.	A3
CO5	Understanding the benefits of logistics network design by doing solving real-time case industry problems.	A4

Course outline and indicative content

Unit I (CO1, L1)

Introduction - Components of Logistics network: Facilities - Plants/Vendors - Ports -- Warehouse Retailers/Distribution Centers - Customers-Raw materials and finished products that flow between the facilities.

The three models of Network Design:

1. Logistics network design with differentiated delivery lead time
2. Logistics network design with price discount
3. Consolidated logistics network design using consolidation hubs.

Unit II (CO2, L1 & L2)

Key issues of Network design: Pick the optimal number, location, and size of warehouses and/or plants - Determining optimal sourcing strategy - which plant/vendor should produce which product?

- Determining best distribution channels - which warehouses should service which customers?

Unit III (CO3, L2)

Data required for Network Design: A listing of all products - Location of customers, stocking points and sources - Demand for each product by customer location - Transportation rates - Warehousing costs - Shipment sizes by product - Order patterns by frequency, size, and season, content - Order processing costs - Customer service goals.

Unit IV (number of sessions) (CO4, L2)

1. The strategic decisions in terms of warehouses when plants and retailer locations are fixed; Pick the optimal number - location - size of warehouses - Determining optimal sourcing strategy
2. - Which plant/vendor should produce which product - Determining best distribution channels- Which warehouses should service which retailers - The objective is to design or reconfigure the logistics network so as to minimize annual system - wide costs, including Production/purchasing costs Inventory carrying costs, and facility costs (handling and fixed costs) Transportation costs.
3. Find a minimal-annual-cost configuration of the distribution network that satisfies product demands at specified customer service levels.

Unit V (CO5, L1 & L2)

1. Data Collection - information on:
 - a) Location of customers, stocking points and sources — location theory
 - b) A listing of all products
 - c) Demand for each product by customer location – forecast technique
 - d) Transportation Cost - Transportation rates by mode—information system, like rating engine
 - e) Mileage estimation
 - f) Warehousing costs (handling and fixed) Inventory management
 - g) Service level requirement—probabilistic technique
 - h) Shipment sizes by product
2. Data Aggregation - the impact of aggregate demand - a heuristic to aggregate data.
3. Data Validation and Model
4. Optimization.

Assessment methods

Task	Task type	Task mode	Weightage (%)
A1. Mid exam	Individual	Written	20
A2. Coursera	Individual	Presentation	10
A3. Case/project work	Group	Presentations/Report with Q&A/Viva	20
A4. End-term exam	Individual	Written (short/long)	50

Mapping COs - Blooms levels- Assessment Tools:

Knowledge dimension / Cognitive dimension	L1. Remember	L2. Understand	L3. Apply	L4. Analyze	L5. Evaluate	L6. Create
Factual Knowledge		CO1 (A1)				

Conceptual Knowledge		CO4 (A3)	CO2 (A1, A3)			
Procedural Knowledge		CO3 (A2, A3)	CO5 (A4)			
Meta Cognitive Knowledge						

Learning and teaching activities

Mixed pedagogy approach is adopted throughout the course. Classroom based face to face teaching, directed study, independent study via X-Learn, case studies, projects and practical activities (individual & group)

Teaching and learning resources

Soft copies of teaching notes/cases etc. will be uploaded onto the X-learn. Wherever necessary, printouts, handouts etc. will be distributed in the class. Prescribed text book will be provided to all. However you should not limit yourself to this book and should explore other sources on your own. You need to read different books and journal papers to master certain relevant concepts to analyse cases and evaluate projects. Some of these reference books given below will be available in our library.

Prescribed text book:

1. Course Material Prepared by LSC
2. Supply Chain Management: Logistics Network Design by Donglei Du, Faculty of Business Administration, University of New Brunswick, NBC an ada Fredericton.
3. Joseph D. Patton, Logistics Technology and Management, Soloman, 1986.
4. Philip T. Frohne, Quantitative Measurements for Logistics, McGraw Hill, 2007

CO PO Mapping

This is to map the level of relevance of the Course Outcome (CO) with Programme Outcome (PO).
0= No Relevance; 1= Low Relevance; 2= Medium Relevance; 3= High Relevance

CO PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	Sum
CO1	3	1	0	2	1	2	9
CO2	2	2	0	1	2	0	7
CO3	2	0	0	2	1	0	5
CO4	3	2	2	1	2	0	10
CO5	2	0	0	2	2	0	6
Target Level Max.	12	5	2	8	8	2	37

BBA (Logistics) - Programme Outcomes (POs) :	
1.	Ability to understand the complexities that companies are facing in today's global network economy.
2.	Ability to recognize key challenges in the design and management of a modern supply chain network, and make strategic decisions based to overcome the challenges.
3.	Ability to understand what goes into designing and setting up a warehousing facility, and to select the options that enable you to develop logistics networks, that minimize costs and deliver top customer service.
4.	Ability to differentiate the advantages and disadvantages of different modes of transportation, and to choose the optimal mode of transportation.

5.	Ability to understand the basic tenets of the Lean management philosophy that enables manufacturers to eliminate waste and make business processes more efficient.
6.	Ability to gain requisite knowledge about different forecasting techniques, essential for building a Supply Chain Operations Plan. Knowledge about tools and techniques to analyse demand data, construct different forecasting techniques, and choose the most suitable one for projecting future demand.

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