

LSCM 7008	Manufacturing Logistics	L	T	P	C
Version 1.0		3	0	0	3
Pre-requisites/Exposure	Under Graduate Level Business & Management Knowledge				
Co-requisites	Knowledge of Operations Management, LSCM				

Course Objectives

- a) To understand the role of manufacturing logistics and resource planning.
- b) To understand issues related to facility location, layout and operations optimisation.
- c) To understand material procurement, stocking, issue and distribution.
- d) To understand warehousing, material handling, packaging, transportation and inventory management.
- e) To understand the role of manpower as a manufacturing resource and issues related to recruitment, training, deployment and career progression.
- f) To understand the relevance of financial management in manufacturing and its contribution in the performance of the firm.
- g) To understand the application of IT in manufacturing and its impact on manufacturing operations.

Course Outcomes

On completion of this course, the students will be able to

- CO1. Apply strategic thinking to problems of facility location and layout and design a balanced manufacturing and product delivery system.
- CO2. Forecast demand and be able to correlate manpower requirements, planning, recruitment, training, deployment and growth.
- CO3. Evaluate material requirement and resource planning and decide inventory policy and strategy in manufacturing, warehousing and transportation.
- CO4. Integrate knowledge of long term financial planning and financing options with manufacturing systems.
- CO5. Apply current advances in ICT to manufacturing systems and organisations.

Catalog Description

The course aims to examine the role of various resources needed for manufacturing industry and optimize their cost and usage through creative methodologies. While the focus would be on use of various optimization techniques and method refinements, the use of resources will be examined at the strategic, tactical and operational levels. Starting with the factors impacting location of manufacturing facilities in the global context, the course will cover optimized layouts, strategic and tactical capacity planning, scheduling and line balancing optimization with the focus on productivity. Manpower planning, recruitment, training and deployment is an essential part of the manufacturing support process and will be covered. Since material cost is one of the largest cost components of any product, optimization of the cost of materials through strategic purchasing practices and proper inventory management is a prerequisite to efficient manufacturing. The use of financial resources optimally is essential to maximizing the output from manufacturing processes and creative working capital management practices will also be covered.

Course Content

Module I: 3 lecture hours

Introduction to Manufacturing Logistics – Definition of Manufacturing logistics, MRP, MRP II and ERP.

Unit II: 4.5 lecture hours

Facility location and layout Planning – Center of Gravity & Centroid method, Transportation cost analysis, Taxes, levies and Finance costs. Systematic layout planning & lean layouts.

Unit III: 4.5 lecture hours

Line Balancing and Scheduling – Task sharing, splitting and parallel lines. Productivity improvement. Scheduling and lot sizing.

Unit IV: 3 lecture hours

Forecasting and Aggregate Planning – Chase, level strategy, Use of Sub- Contracting or Overtime for optimization.

Unit V: 4.5 lecture hours

Manpower Planning – Manpower planning, recruitment, training, deployment and career growth

Unit VI : 9 lecture hours

Materials & Inventory Management – Purchasing, Inventory management, Inventory analysis.

Unit VII : 4.5 lecture hours

Finance & Working Capital Management – Financial structure & working capital

Unit VIII : 3 lecture hours

IT in Manufacturing – IT applications in manufacturing

Text Books

1. Chase R.B. et al (2007) – Operations management for Competitive advantage ,Tata McGraw-Hill Publishing , Eleventh Edition

Reference Readings

1. Levin R.I. et al (2015)– Statistics for Management ,Pearson India , Seventh Impression

2. Chopra S. et al (2010)– Supply Chain Management , Pearson India, 4th Edition

Modes of Evaluation: Quiz/ Project submission/ presentation/ Class room and case discussion/ Written Examination

Examination Scheme:

Components	Quizzes	Case Study and class discussion	Group Project Presentation/ Submission	ESE
Weightage (%)	10	20	20	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	COURSE OUTCOMES (COs)	POs
CO 1	Apply strategic thinking to problems of facility location and layout and design a balanced manufacturing and product delivery system	PO 1,2, 3,4,7,8,9,10, 11,13, 14
CO 2	Forecast demand and be able to correlate manpower requirements, planning, recruitment, training, deployment and growth.	PO 1,2, 3, 7,8,9,10, 11,14
CO 3	Evaluate material requirement and resource planning and decide inventory policy and strategy in manufacturing, warehousing and transportation.	PO 1,2, 3, 8,9,10, 11, 13,14
CO 4	Integrate knowledge of long term financial planning and financing options with manufacturing systems	PO 4,5, 8,12,13, 14
CO 5	Apply current advances in ICT to manufacturing systems and organisations.	PO 1,2,4,8,7,10,11

Program Outcome / Course Outcome mapping

Course Outcomes	CO 1	CO 2	CO 3	CO 4	CO5
PO 1	3	3	3	2	3
PO 2	3	3	3	2	3
PO 3	3	3	3	2	3
PO 4	3	1	1	3	3
PO 5	2	2	1	3	1
PO 6	1	1	1	1	1
PO 7	3	3	1	2	2
PO 8	3	3	3	3	3
PSO 9	3	3	3	1	1
PSO 10	3	3	3	2	1
PSO 11	3	3	3	2	2
PSO 12	1	1	1	3	2
PSO 13	3	1	3	3	3
PSO 14	3	3	3	3	3

Course Code	Course Title	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 9	PSO 10	PSO 11	PS12	PSO 13	PS O14
LSCM 7008	Manufacturing Logistics	3	3	3	2	2	1	3	3	2	2	3	2	3	3
		Students will be able to develop and evaluate alternate managerial decisions and identify optimal solutions	Students will demonstrate effective application capabilities of their conceptual understanding to the real world business situations	Students will be able to exhibit effective decision making skills, employing analytical and critical thinking ability	Students will demonstrate effective oral and written communication skills in the professional context	Students will be able to work effectively in teams and demonstrate team building capabilities	Students will exhibit leadership and networking skills while handling business situations	Students will demonstrate sensitivity towards ethical and moral issues and have ability to address them in the course of business	Students will demonstrate employability traits in line with the changing dynamics of the industry	Students will demonstrate strong conceptual knowledge in the functional area of management as well as LSCM domain	Students will demonstrate effective understanding of relevant functional areas of management and their application in LSCM	Students will demonstrate analytical skills in identification and resolution of business problems pertaining to LSCM & general management	Students will exhibit the ability to integrate functional areas of management with domain perspective for the purpose of planning, implementation & control of LSCM	Students will have global perspective towards business situations in the area of LSCM	Students will exhibit deployable skills pertinent to the LSCM sector

- 1 – Weakly mapped
- 2 – Moderately mapped
- 3 – Strongly mapped

Model Question Paper

Name:			
Enrolment No:			
Course: LSCM 7008 – Manufacturing Logistics			
Programme: M.B.A (LSCM)	Semester: Even 2017-18		
Time: 3 hrs.	Max. Marks: 100		
Instructions:			
Attempt all questions from Section A (each carrying 2 marks); any Four Questions from Section B (each carrying 5marks). Two from Section C (each carrying 15 marks). Section D is compulsory (30 marks)			
Section A (All Questions are Mandatory)			
1	A nxn task optimization can be done using	[2]	CO 1
2.	The MRP process goes from Sales plan to material ordering using, and	[2]	CO 1
3.	The cheapest form of domestic working capital is	[2]	CO 1
4.	The period of delay in making payment to a supplier either directly or against a L/C is called	[2]	CO 1
5.	Supplier's credit leverages to reduce cost of working capital.	[2]	CO 1
6.	Procurement by combining the requirement of different items to be ordered from the same supplier is called	[2]	CO 1
7.	Air cargo consolidation uses the principle of	[2]	CO 1
8.	Time series forecasting takes into account,, and	[2]	CO 1
9.	Manufacture of different kinds of automobile engines is possible using layout .	[2]	CO 1
10.	The layout of a customer oriented service is done using	[2]	CO 1
SECTION B (Attempt any Four Questions) Short Notes			
1.	Inventory analysis	[5]	CO 2

2.	Purchase strategies	[5]	CO 3
3.	Letters of credit	[5]	CO 1
4.	Working capital cycle	[5]	CO 3
5.	Manpower planning	[5]	CO 2
SECTION C (Attempt any 2 questions)			
7.	Discuss the relative merits and demerits of using the P and Q model of ordering Inventory. Please specify the assumptions made in using these models.	15	CO 2,3,5
8.	Critically examine the cycle followed for ordering items of dependent demand. What is the role of different departments in finalizing the production plan?	15	CO2,3,4
9.	Investment in technology gives economies in variable cost of production . However, it has some disadvantages for the organization too. Please examine critically all aspects of adoption of technology upgradation by an organization.	15	CO 2,3
SECTION D			
10.	<p>ABC Ltd. has been facing regular stock out situations in their raw material and component procurement. They appointed a consultant to look into the matter and, after a study, the consultant revised the reorder levels upwards for various items to reduce the chances of stock out. The data given below shows the reorder levels for three items before and recommended ,after the study, by the consultant.</p> <p style="padding-left: 40px;">Item 1 Average daily demand - 250 units per day, Standard deviation of daily demand – 35 units per day. Lead time – 13 days, Standard deviation of lead time – 1 day. Existing ROL 3250 units, proposed ROL 3900 units.</p> <p style="padding-left: 40px;">Item 2 Average daily demand – 200 kg. per day, Standard deviation of daily demand – 20 kg. per day. Lead time – 24</p>	[30]	CO 5

days, Standard deviation of lead time – 1.5 days. Existing ROL 4800 Kg., proposed ROL 5500 kg.

Item 3 Average daily demand – 100 units per day, Standard deviation of daily demand – 10 units per day. Lead time – 26 days, Standard deviation of lead time – 2 days. Existing ROL 2600 units, proposed ROL 3050 units.

Please answer the following:

a)What was the mistake made by ABC Ltd. in setting the existing ROLs? (5 marks)

b)What are the chances of a stock out after the ROL is reset, as recommended by the consultant, for each of the 3 items. (15 marks)

c)What could be the possible reasons for the consultant to use different stock out chances for the 3 items? (10 marks)