LSCM 7001	Operations Management	L	T	P	C
Version 1.0		3	0	0	3
Pre-requisites/Exposure	Graduate Level Business & Management Knowledge				
Co-requisites	--				

Course Objectives

1. To develop an understanding of how the operations have strategic importance and can provide a competitive advantage in the business environment.
2. To understand techniques of location and facility planning; line balancing; job designing; and capacity planning
3. To understand the Materials Management function starting from Demand Management through Inventory Management, Lean Operation/JIT systems,
4. To sensitize students to the advanced concepts like TQM, SCM, ERP and PLM.

Course Outcomes

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

CO1. Identify the elements of operations management and various transformation processes.
CO2. Apply techniques to enhance productivity and competitiveness in operations. Analyze the logistic driven flow to develop a balanced line of production.
CO3. Apply the scheduling and sequencing techniques in operation environments.
CO4. Plan and analyze the inventories in operations environments, quality control measures in Quality Circles to TQM.

Catalog Description

Operations Management (OM) deals with the planning, designing and operating production and service systems for rendering goods and services. The course will explore the approaches and analyze strategic decisions with a focus on designing the products and processes, allocating scarce resources to strategic alternatives, and long-range planning for facility and capacity. OM functions help an organization to achieve its long-range objectives through medium to short term plans and control measures. Care will be taken to strike a balance between theoretical and practical perspectives in manufacturing and service organizations.

Course Content

Unit I: 12 lecture hours

Introduction to Operations Management: Introduction to operations and Materials Management, Evolution Scope and Development Stages of OM, Operations Vs Projects, Operations strategy: As a competitive weapon & Concept of productivity.
Forecasting: Introduction to Forecasting, Time Series Introduction, Components of Time Series, Types of Forecasting, Regression Method, Moving Average, Exponential method, Double Exponential method

Unit II: 12 lecture hours

Facility Location & Layout: Parameters & Criterion for selection of a location, Different types of layouts, their planning and production systems, Service Layouts & Operations.

Assembly line balancing & Scheduling: Networking of Process Flow, Assembly Line Balancing, Scheduling of Operations.
Capacity Planning: Planning Capacity across the Organization, Planning Long-Term Capacity, Capacity Timing and Sizing Strategies.

Unit III: 12 lecture hours

Materials Management: Materials Handling, Role of purchase department, Inventory Basics, ERP, KANBAN System, Lean operations and JIT.
Inventory planning & control: EOQ Models, Inventory Control Techniques: ABC, VED analysis etc.
Quality planning & control: Total Quality Management (TQM), Statistical Process Control, Control Charts.

Text Books

1. James R Evans, David A Collier & Kunal Ganguly(2016) – Operations Management, Cengage Learning.
2. Richard B Chase, F Robert Jacobs, Nicholas J Aquilano, & Nitin K Agarwal(2006); Operations Management for Competitive Advantage; Tata McGraw-Hill (11th Edition)

Reference Books

1. Richard B. Chase, Ravi Shankar and F. Robert Jacobs (2014) Operations & Supply Chain Management. McGraw-Hill(12th and 14th Edition)
2. Chary S. N. Theory and Problems in Production & Operations Mgt. Tata McGraw Hill (14th Edition)
3. Krajewski Lee Operations Mgt. Process for Value Chains, Prentice Hall (8th Edition).

Modes of Evaluation: Quiz/Assignment/ presentation/ Written Examination
Examination Scheme:

Components	Assignment + Quiz	Case Study	Group Project	End Semester Examination
Weightage (%)	25	10	15	50

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

Mapping between COs and POs		
	COURSE OUTCOMES (COs)	**POs**
CO 1	Identify the elements of operations management and various transformation processes.	**PO 1,2, 3,4,7,8,9,10, 11,13, 14**
CO 2	Apply techniques to enhance productivity and competitiveness in operations. Analyze the logistic driven flow to develop a balanced line of production	**PO 1,2, 3, 7,8,9,10, 11,14**

CO 3	Apply the scheduling and sequencing techniques in operation environments.	**PO 1,2, 3, 8,9,10, 11, 13,14**
CO 4	Plan and analyze the inventories in operations environments, quality control measures in Quality Circles to TQM.	**PO 4,5, 8,12,13, 14**

Program Outcome / Course Outcome mapping

Course Outcomes	**CO 1**	**CO 2**	**CO 3**	**CO 4**
PO 1	3	3	3	2
PO 2	3	3	3	2
PO 3	3	3	3	2
PO 4	3	1	1	3
PO 5	2	2	1	3
PO 6	1	1	1	1
PO 7	3	3	1	2
PO 8	3	3	3	3
PSO 9	3	3	3	1
PSO 10	3	3	3	2
PSO 11	3	3	3	2
PSO 12	1	1	1	3
PSO 13	3	1	3	3
PSO 14	3	3	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 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
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	PSO14
LSCM 7001	**Operations Maanagement**	3	3	3	2	2	1	3	3	2	2	3	2	3	3

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

Model Question Paper

Name: **Enrolment No:**	

Course: LSCM7001 – Operations Management

Programme: MBA (LSCM) **Semester: 1st-2017-19**

Time: 03 hrs. **Max. Marks:100**

Instructions:

Attempt all questions from **Section A** (each carrying 2 marks); any **Four Questions** from **Section B** (each carrying 5 marks)**. Section C** is Compulsory (carrying 10 marks)**,** any **Two Questions** from **Section D** (carrying 15 marks)**.**

Section A (All Questions are Mandatory)

1	Corporate strategy	**[2]**	**CO1**

2.	Pareto analysis	**[2]**	**CO1**
3.	Partial factor Productivity	**[2]**	**CO2**
4.	Outpost factories	**[2]**	**CO2**
5.	Production Quantity Model	**[2]**	**CO3**
6.	Gap Model	**[2]**	**CO2**
7.	PERT	**[2]**	**CO4**
8.	Process Layout	**[2]**	**CO3**
9.	MRP Matrix	**[2]**	**CO3**
10.	Master Production Schedule	**[2]**	**CO3**
	SECTION B (Attempt any **Four Questions)**		
1.	What are the various classifications of layout? Explain any two.	**[5]**	**CO3**
2.	What do you understand by vertical, forward and backward integration?	**[5]**	**CO2**
3.	What are the various techniques of capacity expansion? Explain.	**[5]**	**CO2**
4.	Explain the most commonly used Six Sigma process?	**[5]**	**CO4**
5.	What are the various types of integrated operating system (IOS)?	**[5]**	**CO1**
	SECTION C (Attempt **all Questions)**		
7.	Find the forecast for the month of May using exponential smoothing method Demand data Jan 23.3 Feb 32.4 Mar 34.0 Apr 27.5 And the January Forecast was: 27 Smoothing constant = 0.20	**10**	**CO3**
8.	Find the optimal order quantity of a product for which the price breaks are as follows: **Quantity(units)** | **Price per unit(Rs.)** **$0 < Q_1 < 500$** | **10.00** **$500 <= Q_2$** | **9.00** The monthly demand of the product is 200 units, the storage cost is 2 percent of the unit cost and the cost of ordering is Rs. 350 per order.	**10**	**CO4**
9.	Five jobs are performed, first on machine X and then on Machine Y. The time taken in	**10**	**CO3**

hours by each job on each machine is given below:

Job	A	B	C	D	E
Time on machine X	12	4	20	14	22
Time on machine Y	6	14	16	18	20

Determine the optimum sequence of jobs that minimizes the total elapsed time to complete the jobs. Also compute the minimum time.

SECTION D (Attempt any **Two Questions)**

10. Formulate the capacitated plant location model for 3 potential plant locations and 3 number of markets. Classify the same for n potential plant locations and m number of markets. **[15]** **CO1**

11. Product X is made from two components, A and B. It takes two A's and one B to make a single product X. Component A is made from three parts C's. Component B is made from two part C's and 5 part D's. Use this information together with data below to answer the following questions: **[15]** **CO3**

Part	Lead Time	Lot Size	On hand	Scheduled Rcpts
X	2	Lot for Lot	50	None
A	3	100	75	None
B	1	50	35	None
C	2	300	100	300, week 1
D	2	300	20	None

a) Make MRP records for X, A, B, C, and D. Production quantities and production start dates for A are: 20 each in week 1, 2, 3, 10 each in week 4, 5, 20 in week 6, 40 in week 8, and 40 in week 10.

12. H.C: Morris, owner of Environmental Recycling Inc., must clean up a large trash dump under a state environment. Consider the tasks, durations, and predecessor relationships in the table below. **[15]** **CO4**

a) Draw the project network and fill out the table

b) Identify the critical path(s) and the project completion time.

Activity	**Immediate Predecessor**	**Time(in days)**	**Earliest Start**	**Earliest Finish**	**Latest Start**	**Latest Finish**	**Slack**
A	-	7					
B	A	8					
C	A	12					
D	B	2					
E	C,D	8					
F	C	3					
G	F	2					
H	F	8					
I	E,G,H	8					
J	I	2					
K	G	9					