

LSCM 2008	DEMAND PLANNING AND FORECASTING	L	T	P	C
Version 1.0		3	0	0	3
Pre-requisites/Exposure	Basic knowledge of supply and demand concept				
Co-requisites	Basic knowledge of Management				

Course Objectives

1. To describe the role of demand forecasting and steps required to do successful forecasting.
2. To learn different forecasting models/techniques both quantitative and qualitative.
3. To understand the concept of market intelligence, customer-generated demand forecasts and CPFR
4. To identify different process types and understand different strategies like MTS, MTO, and ATO with demand uncertainty.
5. To demonstrate the concept of sales and operations planning (S&OP), primarily focusing on aggregate planning strategies like Chase, Level, Time Flexibility and Mixed.
6. To describe the fundamentals of integration of demand planning with production like MPS, ATP, MRP, BOM, DRP, MRP-II and ERP.

Course Outcomes

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

- CO1. Develop skills required for Demand planning and Forecasting
- CO2. Apply the forecasting Techniques/Models (both Qualitative and Quantitative)
- CO3. Developing the knowledge of Market Intelligence, Customer-Generated Forecast and CPFR
- CO4. Demonstrate conceptual understanding of Demand Planning and management
- CO5. Demonstrate Sales and Operations Planning concept and their strategies
- CO6. Assess the fundamentals of integration of demand planning with production

Catalog Description

Demand planning is a multi-step operational SCM process helps in creating the reliable forecasts. The use of effective demand planning will further improves the accuracy rate of forecasts both qualitative and quantitative way. The course covers various methods like time series, causal/associative, etc., applied to identify the estimated forecasted value, thus makes it easier to measure the forecast errors/accuracy rate. The course also gives an overview of planning and control so that the students can easily understand different process types, aggregate planning strategies, MPS, MRP, ERP, DRP, and so on. The most important aspect of the course is that students learn the forecasting techniques and planning strategies i.e. how to analyze, apply and integrate it practically.

Classroom activities involving lectures followed by discussions with examples, audio/visual presentation, individual or group presentations, and case based problem solving which encourage students to get involved and absorb & assimilate inputs.

Class participation is an important aspect of this course that encourage students to actively participate in all group activities/discussions and give oral presentations. Students are supposed to come prepared for the topics for discussion in the class to make an interactive approach.

Course Content

Unit I: 5 lecture hours

Demand forecasting- Definition, Forecasting in different firms, Characteristics of forecasts, Forecasting Time Horizon, Steps for successful forecasting, Forecasting Hierarchy, Sources of data, Design of forecasting systems, Forecasting Software.

Unit II: 9 lecture hours

Quantitative Forecasting Techniques– Definition, Time Series- Naïve, Average, Simple Moving Average, Weighted Moving Average, Exponential Smoothing; Forecast Errors/Accuracy Rate – MAD, MSE; Trend Projection, Seasonal Indexes, Holt’s, winter’s Model, Linear Regression.

Unit III: 3 lecture hours

Qualitative Forecasting Techniques- Definition, Delphi, Precautions in administering Delphi, Sales force composite, Consumer Panel Survey, Nominal group, and their Drawbacks.

Unit IV: 3 lecture hours

Market Intelligence- Definition, Micro Vs Macro market intelligence; Customer-generated forecasts – Definition, How to incorporate into process?, How collaboration takes place?, Which customers to work with?, CPFR – Benefits, working, ingredients.

Unit V: 3 lecture hours

Overview of Demand Planning - Introduction, Dependent Vs Independent demand, Demand Management, Order winners, Qualifiers, Customer influence in design: production environmental choices like MTS, ATO, MTO with examples.

Unit VI: 6 lecture hours

Sales and Operations Planning- Purpose, General Design, Approaches, Aggregate Strategies – Chase, Level, Time Flexibility, Mixed, Graphical Methods.

Unit VII:**7 lecture hours**

Integration of Demand Planning with production - Master Production Schedule: Definition, Master Schedule Horizon, Simple Master Schedule, Two-level Master Schedule, Available to Promise (ATP) Logic,

Material Requirement Planning: Fundamentals, The Problem with Reorder points, Safety Stock, Bills of Material, MRP Explosion, MRP Challenges, Distribution Requirement Planning (DRP), Enterprise Resource Planning (ERP)

Text Books

1. Mahadevan, B. (2010). *Operations Management: Theory and Practice* (2nd ed.). Pearson.
2. Chopra, S., Meindl, P., and Kalra, D.V. *Supply Chain Mangement: Strategy, Planning and Operation* (6th ed.). Pearson.
3. Chapman, S.N. (2017). *The Fundamentals of Production Planning and Control*. Pearson.

Reference Books

1. Diebold, F. X. (2004). *Elements of Forecasting* (3rd ed.). Thomson South Western.
2. Wheelwright, S.C. *Forecasting Methods for Management* (3rd ed.). Wiley Interscience.
3. Moon, M.A. *Demand and Supply Integration: The Key to World Class Demand Forecasting*. (e-book).
4. Ballou, R.H. *Business Logistics/Supply Chain Management* (5th ed.). Pearson.
5. Jain, K.C. and Aggrawal, L.N. (2017). *Production Planning Control and Industrial Management*. Khanna Publishers.

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

Components	Internal Assessment	Mid Sem. Exam.	End Sem. Exam.
Weightage (%)	30	20 Assignment Group Discussion Presentation	50

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

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Programme Outcomes
CO1	Develop skills required for Demand planning and Forecasting	PO 1, 2, 4, 8,9,12

CO2	Apply the forecasting Techniques/Models (both Qualitative and Quantitative)	PO 2,3,4,8,7,8
CO3	Developing the knowledge of Market Intelligence, Customer-Generated Forecast and CPFR	PO 3,4,6,8, 9, 12
CO4	Demonstrate conceptual understanding of Demand Planning and management	PO 4,5,6,7,9,10,11
CO 5	Demonstrate Sales and Operations Planning concept and their strategies	PO 1,2,3,7,8,9,10
CO 6	Assess the fundamentals of integration of demand planning with production	PO 2,4,5,1,9,10,11

Program Outcome / Course Outcome mapping

Course Outcomes	CO 1	CO 2	CO 3	CO 4	CO 5	CO 6
PO 1	3	3	3	2	2	1
PO 2	3	3	3	2	2	1
PO 3	3	3	3	2	2	2
PO 4	3	1	1	3	1	2
PO 5	2	2	1	3	1	2
PO 6	2	2	2	2	1	2
PO 7	3	3	1	2	1	2
PO 8	3	3	3	3	1	2
PSO 9	3	3	3	1	1	2
PSO 10	3	3	3	2	1	1

PSO 11	3	3	3	2	2	1
PSO 12	1	1	1	3	2	1

		Students will demonstrate strong conceptual knowledge of management & its functional areas.	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 be able to evaluate the legal, social and economic environments of business.	Students will be able to describe the global environment of business.	Students will demonstrate sensitivity towards ethical and moral issues and have ability to address them in the course of business.	Students will be able to apply decision-support tools to business decision making.	Students will be able to apply knowledge of business concepts and functions in an integrated manner.	Students will demonstrate conceptual domain knowledge of the logistics sector.	Students will apply decision-support tools to decision making in logistics sector.	Students will apply conceptual knowledge of logistics sector in an integrated manner.	Students will demonstrate employable and deployable skills for appropriate roles in management.
LSC M 200 8	DEMAND PLANNING AND FORECASTING	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 9	PSO 10	PSO 11	PSO1 2
		3	3	3	2	2	2	2	3	2	3	3	2

1 – Weakly mapped

2 – Moderately mapped

3 – Strongly mapped

Model Question Paper

Name:
Enrolment No:



Course: LSCM 2008– Demand Planning and Forecasting

Programme: BBA LM

Semester: EVEN (Jan-May 2018)

Time: 03 hrs.

Max. Marks:100

Instructions:

Attempt all from **Section A** (each carrying 2 marks); any **four Questions** from **Section B** (each question carrying 5 marks). **Section C & D** is Compulsory (carrying 30 marks each).

SECTION A (Attempt all questions)

1.	Define forecasting with an example.	[2]	CO1
2.	Explain Quantitative Vs Qualitative Forecasting Methods in two points with an example.	[2]	CO2
3.	Explain Manufacturing Vs Service Operations in two points with an example.	[2]	CO4
4.	Explain MRP Vs MRP Explosion in two points with an example.	[2]	CO6
5.	Write down the steps involved for doing successful forecasting.	[2]	CO1

SECTION B (Attempt any Four Questions)

1.	What are the components of time series? Explain with the use of example.	[5]	CO2
2.	Explain Chase Strategy. Compare it with Level strategy with an example.	[5]	CO5
3.	Discuss all the customer influence in design production environmental choices with an example.	[5]	CO4
4.	Define Market Intelligence. Explain Micro Vs Macro Market Intelligence with an example.	[5]	CO3
5.	Explain ATP Logic with an example.	[5]	CO6

SECTION C is Compulsory

7.	Sales of Super Cool brand of motorbikes are being analysed. The monthly sales figures for the previous year are furnished below: (a) Get a 3-month moving average for the various months of the year (b) Get a 3-month weighted moving average with weights of: Current month: 0.5; Previous Month: 0.3; and Previous to previous month: 0.2 (c) Which method seems give a better fit? You may base your reply upon MAD calculations	[30]	CO2
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Month	Demand
1	8
2	5
3	9

	4	11		
	5	13		
	6	13		
	7	10		
	8	11		
	9	14		
	10	15		
	11	16		
	12	18		
SECTION D is Compulsory				
8.	Draw the forecasting hierarchy and use the formula to explain each one of them.		[30]	CO1
