SEMESTER S8

OPERATIONS MANAGEMENT

Course Code	PEMRT863	CIE Marks	40
Teaching Hours/Week (L: T:P: R)	3:0:0:0	ESE Marks	60
Credits	3	Exam Hours	2 Hrs. 30 Min.
Prerequisites (if any)	None/ (Course code)	Course Type	Theory

Course Objectives:

1. This course is designed to facilitate the students to acquire knowledge about operations management concepts, tools and techniques.
2. This course covers system concept of production, facility location analysis, facility layout, line balancing, demand forecasting, aggregate planning, material requirement planning and production scheduling.
3. It empowers the students to amalgamate their knowledge and thus inculcate the skills needed to apply these concepts, tools and techniques in industry.

KTU SPECIAL

SYLLABUS

Module No.	Syllabus Description	Contact Hours
1	**Introduction to Operations Management:** Objectives, Operations Management: Functions and Scope, Types of Production Systems, process planning, make or buy decisions, process reengineering, Operations Strategy. **Facility Planning**, Factors Affecting Plant Location, Plant Location: Case Study, location analysis techniques – location factor rating–center of gravity technique – load distance technique.	9
2	**Capacities and facilities:** capacity planning, facility layout – objectives, types of layout – process layout – product layout – fixed position layout – cellular layout, systematic layout, planning, layout design procedures – CRAFT – CORELAP – ALDEP.	9

	Assembly line balancing: methods for line balancing – rank positional weight method –COMSOAL.	
3	**Demand forecasting:** need and uses of forecasting, components of forecasting demand, time series methods – moving average – weighted moving average – exponential smoothing – adjusted exponential smoothing – linear regression – seasonal adjustments, forecast accuracy. **Aggregate planning:** aggregate planning strategies	**9**
4	**Materials requirement planning**: objectives, master production schedule, bill of materials, evolution from MRP to manufacturing resource planning (MRP II). **production scheduling**: objectives – processing characteristics and constraints – performance measures, Gantt chart, single machine scheduling	**9**

Course Assessment Method

(CIE: 40 marks, ESE: 60 marks)

Continuous Internal Evaluation Marks (CIE):

KTU SPECIAL

Attendance	Assignment/ Microproject	Internal Examination-1 (Written)	Internal Examination- 2 (Written)	Total
5	**15**	**10**	**10**	**40**

End Semester Examination Marks (ESE)

In Part A, all questions need to be answered and in Part B, each student can choose any one full question out of two questions

Part A	Part B	Total
• 2 Questions from each module. • Total of 8 Questions, each carrying 3 marks **(8x3 =24marks)**	• Each question carries 9 marks. • Two questions will be given from each module, out of which 1 question should be answered. • Each question can have a maximum of 3 sub divisions. **(4x9 = 36 marks)**	**60**

Course Outcomes (COs)

At the end of the course students should be able to:

Course Outcome		Bloom's Knowledge Level (KL)
CO1	Understand operations, production system and perform facility location analysis.	**K2**
CO2	Impart knowledge of facility layout, layout planning and perform line balancing.	**K2**
CO3	Compute demand forecast and forecast accuracy.	**K2**
CO4	Understand the Knowledge of aggregate planning and materials requirement planning.	**K2**
CO5	Impart Knowledge on Production Scheduling techniques.	**K2**

Note*: K1- Remember, K2- Understand, K3- Apply, K4- Analyse, K5- Evaluate, K6- Create*

CO-PO Mapping Table (Mapping of Course Outcomes to Program Outcomes)

KTU SPECIAL

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	-	-	-	1	-	1	-	1	2	2
CO2	3	3	2	1	2	-	-	-	-	1	2	2
CO3	3	3	2	1	1	-	-	-	-	1	2	2
CO4	3	3	2	-	1	-	-	-	-	1	2	2
CO5	3	3	2	1	1	-	-	-	-	1	2	2

Note: *1: Slight (Low), 2: Moderate (Medium), 3: Substantial (High), -: No Correlation*

Text Books				
Sl. No	**Title of the Book**	**Name of the Author/s**	**Name of the Publisher**	**Edition and Year**
1	Operations Management	Roberta S. Russell and Bernard W. Taylor III	John Wiley & Sons, Inc., Seventh Edition	2011
2	Production and Operations Management	R. Paneerselvam	PHI	2010

Reference Books				
Sl. No	**Title of the Book**	**Name of the Author/s**	**Name of the Publisher**	**Edition and Year**
1	Operations Management	Heizer and Render	Pearson Education	Eleventh Edition
2	Operations Management: A Quantitative Approach	P. B. Mahapatra	PHI	2010
3	Quantitative Models in Operations and Supply Chain Management	G. Sreenivasan,	, PHI	SECOND EDITION

Video Links (NPTEL, SWAYAM…)	
Module No.	**Link ID**
1	https://archive.nptel.ac.in/courses/112/107/112107238/ https://youtu.be/_VJkKZFuRvE
2	https://youtu.be/pcpp2rmAMx8 https://youtu.be/-aGk5-yx340
3	https://youtu.be/Ic_El2DkpjA
4	https://youtu.be/1kU8HG5Y9Kc

KTUSPECIAL