

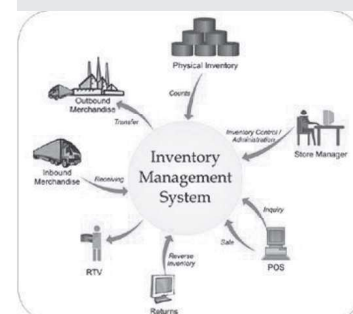
Hours Per Week :

L	T	P	C
3	-	-	3

Total Hours :

L	T	P
45	-	-

WA/RA	SSH/HS	CS	SA	S	BS
20	40	5	-	-	-



Source:

<https://www.indiamart.com/proddetail/inventory-management-system-12605925262.html>

COURSE DESCRIPTION AND OBJECTIVES:

This course offers the application of principles and techniques for planning and control of the production and service systems to optimize/make best use of resources. The objective of this course is to emphasize the importance of various production planning control parameters and their applications used in industries.

COURSE OUTCOMES:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes	POs
1	Understand the different types of production systems and types of layouts.	1
2	Solve problems under different demand forecasting methods and single machine scheduling problems.	3
3	Analyze project management techniques such as CPM & PERT.	2,11
4	Use the techniques to solve assembly line balancing problems.	3
5	Implement the work study concept in real life situations.	5,11

SKILLS:

- ✓ Recognize the importance of Operations Research and mathematical modelling for solving practical problems in industries.
- ✓ Implement transportation and assignment solutions using appropriate optimization algorithms.
- ✓ Apply game and queuing theory appropriately to solve problems.
- ✓ Analyse inventory control and project management techniques.

UNIT-I**L-9**

INTRODUCTION TO INDUSTRIAL ENGINEERING: Introduction to IE and PM, Types of Manufacturing Systems, Job Order Production, Batch Production, Mass Production.

PRODUCTIVITY & PLANT LAYOUT: Definition, Measurement of Productivity, Factors affecting Productivity, Introduction to Plant Layout, Objectives of Plant Layout, Principles of Plant Layout, PPC-definition, objectives, functions.

UNIT-II**L-9**

PLANNING FOR PRODUCTION: Aggregate Planning - definition, pure strategies in Aggregate Planning; MRP - introduction, objectives of MRP, inputs to MRP, outcome of MRP, calculations (EOQ Method).

DEMAND FORECASTING: Definition, Need of forecasting, Forecasting Methods (Qualitative Methods and Quantitative Methods) - Least square method, Moving average method, Exponential Smoothing Method, Forecasting Errors, Calculations-MAD, MSE.

UNIT-III**L-9**

SINGLE MACHINE SCHEDULING: Priority rules - SPT, EDD, and FCFS; Terminology - completion time, flow time, tardiness, lateness, mean completion time, mean tardiness, simple problems on the above concepts.

METHOD STUDY: Definition, Objectives, Procedure.

WORK MEASUREMENT: Definition, Objectives, Procedure.

UNIT-IV**L-9**

ASSEMBLY LINE BALANCING: Definition, Advantages, RPW method, Problems.

NETWORK ANALYSIS: Activity analysis, Network construction, Critical path method (CPM), Programme Evaluation and Review Technique (PERT).

UNIT-V**L-9**

STATISTICAL QUALITY CONTROL: Introduction, Quality, Control, Inspection, Quality Control, Importance and objectives of QC, Seven tools for Quality Control (1. Pareto charts, 2. Check sheets, 3. Cause and effect diagram, 4. Scatter diagrams, 5. Histogram, 6. Graphs or flow charts, 7. Control charts).

STATISTICAL PROCESS CONTROL: Control charts for variables (X-Chart, R-Chart), Attribute Control Charts (P-Chart, C-Chart).

TEXT BOOKS:

1. Martand Telsang, "Industrial Engineering and Production Management", S. Chand and Company, 2014.
2. O.P. Khanna, "Industrial Engineering and Management", 17th edition, Dhanpat Rai Publications, 2010.

REFERENCE BOOKS:

1. Samuel Eilon, "Elements of Production planning and Control", 1st edition, Universal Book Publishers, 2004.
2. R. Pannerselvam, "Production & Operations Management", 2nd edition, Prentice Hall of India, 2009.
3. Joseph Monks, "Operations Management", 3rd edition, Tata McGraw-Hill, 2005.
4. S.N. Chary, "Production & Operations Management", 4th edition, Tata McGraw-Hill, 2009.
5. Ravindra K. Ahuja, "Network Flows: Theory, Algorithms and Applications" Pearson Education Publishers, 2013.