

ME426 OPERATIONS MANAGEMENT

(Dept. Elective - VI)

Course Description & Objectives:

To understand the concept of various types of manufacturing systems, productivity concept and various types of layouts Emphasize the importance of Production planning and control parameters in manufacturing organizations Be aware of the demand forecasting importance and its various qualitative and quantitative methods. To understand the concept of Capacity planning, Aggregate planning and assembly line balancing. To understand the concept of inventory, classification of inventory and reasons for keeping inventory. Also understand about what the economic order quantity is and how to calculate it. To understand the concept of Automation and its types, Group Technology cells and the concept of MRP-I, MRP-II

Course Outcomes:

Upon course completion, the students will be able to:

1. To gain an understanding and appreciation of the principles and applications relevant to the planning, design, and operations of manufacturing/service firms.
2. To develop skills necessary to effectively analyze and synthesize the many inter-relationships inherent in complex socio-economic productive systems.
3. To reinforce analytical skills already learned, and build on these skills to further increase your "portfolio" of useful analytical tools for operations tasks.
4. To gain some ability to recognize situations in a production system environment that suggests the use of certain quantitative methods to assist in decision making on operations management and strategy.
5. To understand how Enterprise Resource Planning and MRPII systems are used in managing operations

UNIT – I Introduction to Operations Management:

Production Definition - Types of production systems-Job order, Batch & continuous. Productivity - Definition, Measurement, Factors affecting

productivity. Plant layout - Definition, Objectives, Factors Influencing Plant layout. Types of plant layouts - Product, Process, Fixed Position, Combination. Functions of production planning and control.

UNIT - II Planning for Production:

MRP - Definition, Objectives, System, Simple calculations. Demand forecasting techniques - (i.e., least square method, moving average method, Exponential smoothing method).

Single Machine Scheduling: Priority rules - SPT, EDD, FCFS. Terminology - Completion time, Flow time, Tardiness, Lateness, Mean Completion Time, Mean Tardiness. Simple Problems.

UNIT - III Inventory Management:

Inventory management - Functions of inventories - relevant inventory costs - ABC analysis - VED analysis - EOQ model (Purchase and production models without shortages) - Single and multiple Price breaks without shortages- Simple problems on above concepts.

UNIT - IV Automation:

Definition, Applications, Advantages, Disadvantages. Types of automation - Fixed, Programmable, Flexible. Design of GT cells formation using ROC Algorithms - Classification of control systems.

UNIT - V Line Balancing:

Definition, Terminology, Line balancing techniques (Rank positional weightage method), Problems on line balancing. Aggregate planning - Definition, Pure Strategies, Formulation of Aggregate planning problem as a Transportation problem.

TEXT BOOKS :

1. Joseph Monks, "Operations Management", 3rd ed., Tata Mc Graw Hill, 2005.
2. S.N. Chary, "Production & Operations Management", 4th ed., Tata Mc Graw Hill, 2009.

REFERENCES BOOKS :

1. R. Panner Selvam, "Production & Operations Management", 2nd ed., Prentice Hall of India, 2009.
2. Martand Telsang, "Industrial Engineering and Production Management", 2nd ed., S.Chand & Co. Ltd., 2009.
3. Samuel Eilon, "Elements of Production Planning and Control", 1st ed., Universal Book Publishers, 2004.