UNIT 1

Syllabus : Definition and Role of Industrial Engineering, Types of production systems and organization structure, Functions of management.

Measurement of productivity : Factors affecting the productivity, Productivity Models and Index (Numerical), Productivity improvement techniques.

Note : Productivity improvement techniques viz. 5S, Kaizen, TPS, KANBAN, JIT, etc. shall be discussed at the end of this Unit

UNIT 2

Syllabus :

Work Study : Definition, objective and scope of work-study, Human factors in work-study.

Method Study : Definition, objective and scope of method study, work content, activity recording and exam aids.

Charts to record movements : Operation process charts, flow process charts, travel chart, two-handed chart and multiple activity charts. Principles of motion economy, classification of movements, SIMO chart, and micro motion study. Definition and installation of the improved method, brief concept about synthetic motion studies. Introduction to Value Engineering and Value Analysis.

UNIT 3

Syllabus :

Work Measurements : Definition, objectives and uses, Work measurement techniques.

Work Sampling : Need, confidence levels, sample size determinations, random observation, conducting study with the simple problems.

Time Study : Definition, time study equipment, selection of job, steps in time study. Breaking jobs into elements, recording information, Rating and standard rating, standard performance, scales of rating, factors affecting rate of working, allowances and standard time determination.

Introduction to PMTS and MTM : (Numerical), Introduction to MOST

Syllabus :

Introduction : Types of production systems, Need and functions of PPC, Aggregate production planning.

Capacity Planning, ERP : Modules, Master Production Schedule, MRP and MRP-II.

Forecasting Techniques : Causal and time series models, moving average, exponential smoothing, trend and seasonality (Numerical), Demand Control strategies (MTO, MTA, MTS).

Introduction to Supply Chain Management : Basic terminologies

UNIT 5

Syllabus :

Plant Location : Need and factors influencing plant location,

Plant Layout : Objectives, principles, types of plant layouts, Introduction to Assembly Line Balancing and Layout parameters to evaluate.

Material Handling : Objectives, relation with plant layout, principles. Types and purpose of different material handling equipment, Selection of material handling equipment.

Inventory control and Management : Types of inventories, Need of inventories, terminology, costs, **Inventory Models :** Basic production models, (with and without shortage and discount), ABC, VED Analysis

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