

32053 – PROCESS PLANNING AND COST ESTIMATION

DETAILED SYLLABUS

UNIT- I Process Planning

Introduction - concept – Information required to do process planning - factors affecting process planning - process planning procedure - Make (or) Buy decision using Break Even Analysis - simple problems. Manual process planning - Introduction of Automated process planning and generator process planning - Advantage of computer aided process planning – Principle of line balancing - need for line balancing – Value Engineering – Definition - cost control Vs cost reduction - value analysis when to do - steps information needed - selection of product.

UNIT- II Process Selection

Process selection - technological choice - specific component choice - Process flow choice – Factors affecting process selection - machine capacity – analysis of machine capacity - process and equipment selection procedure - Determination of man, machine and material requirements - simple problems - selection of material – jigs - fixtures etc. - Factors influencing choice of machinery - selection of machinery - simple problems - preparation of operation planning sheet for simple components.

UNIT- III Work Study

Objectives of work study - Concept of work content – Techniques to reduce work content - method study – Procedure – Recording techniques used in method study - Micro motion study - Principles of motion economy - Therbligs - Simo chart - cycle graph - Chrono cycle graph - work measurement - Basic Procedures for the conduct of time study - calculation of standard time - simple problems – Ergonomics – definition – objectives – applications - working environment - work place layout - other areas.

UNIT- IV Cost Estimation

Introduction - Definition - Purpose of cost estimation - cost estimation Vs Cost accounting - components of cost – direct cost - indirect cost - overhead expenses - estimation of cost elements - set up time and economic lot size - tool change time - Inspection time - performance factor – overheads - different methods of apportioning overheads – Data required for cost estimating - Steps in making a cost estimate – problems - estimation of production cost of simple components such as coupling, shaft, crank etc. – problems.

UNIT- V Machining Time Calculations

Elements of metal machining - cutting speed - feed - depth of cut - procedure for assigning cutting variables - calculation of machining time for different lathe operations like - turning - facing - chamfering - parting - knurling and forming - Calculation of machining time for operations on drilling machine - machining time for shaping, planing, slotting, broaching and sawing operations - Machining time for face milling and slab milling operations - timing for thread cutting - estimation of total unit time - Procedure for doing the above machining calculations with formulae used - simple problems.

TEXT BOOKS

- 1) Industrial Engineering & Management - O.P Khanna
- 2) Industrial Engineering & Production Management - Martand Telsang

REFERENCE BOOKS

- 1) Production Engineering - P.C.Shrma.
- 2) Production and Costing - GBS Narang and V.Kumar
- 3) Mechanical Estimating and Costing - Banga & Sharma.