

PCMF4204 MANUFACTURING TECHNOLOGY-II

Module-I

(16 Hours)

Basic shapes of machine tools. Wedge action, function of different angles of cutting tools, tool geometry, and Nomenclatures ASA, ORS systems. Conversion of angles, geometry of twist drill & slab milling cutter, grinding of single point cutting tool. Tool materials.

Force system in turning- Merchant circle diagram, velocity relationship .Stress in conventional shear plane, Energy of cutting process, Ernst & Merchant angle relationship, Forces in drilling and plane slab milling. Measurement of forces-dynamometer for measuring turning & drilling forces.

Module-II

(10 Hours)

Mechanism of chip formation: Mode of failure under stress- fracture & yielding mechanism.

Thermodynamics of chip formation: The shear plane temperature-interface temperature from dimensional analysis-Experimental determination of chip tool interface temperature. Coolants-mechanism cooling action

Module-IV

(8 Hours)

Tool wear: Criteria of wear. Machinability and tool life, Flank wear. Taylor's tool life equation, Crater wear, Causes and mechanism of tool failure. Vibration & chatter in machining. Economics of metal machining.

TEXT BOOK(S):

1. Metal cutting Theory & Practice- A.Bhattacharya, C.B.Pub.
2. Production Technology- P.C Sharma.

REFERENCE(S):

1. Fundamentals of Metals machining & machine Tools- Boothroyd- International student Edition.
2. Theory of Metal cutting- Milton Shaw