

Lesson Plan

Name of the Faculty : Mr. Deepak Anand
 Discipline : Mechanical Engineering
 Semester : 6th
 Subject : Manufacturing Technology-II (PCC-ME- 302G)
 Lesson Plan Duration : 15 Weeks (from April 2021 to July 2021)
 ** Work Load (Lecture) per week (in hours): Lectures-03, Practicals-01

Week	Theory		Practical	
	Lecture Day	Topic (including assignment/test)	Practical day	Topic
1 st	1 st	Mechanism of Metal Cutting: Deformation of metal during machining.	1 st	Study & Practice of Orthogonal & Oblique Cutting on a Lathe.
	2 nd	Nomenclature of lathe.		
	3 rd	Milling tools, Mechanics of chip formation, Built-up edges.		
2 nd	4 th	Mechanics of orthogonal and oblique cutting.	2 nd	Machining time calculation and comparison with actual machining time while cylindrical turning on a Lathe and finding out cutting efficiency.
	5 th	Merchant cutting force circle and shear angle relationship in orthogonal cutting.		
	6 th	Factors affecting tool forces.		
	7 th	Cutting speed, feed and depth of cut, surface finish.	3 rd	Study of Tool Life while milling a component on the Milling Machine.

3 rd	8 th	Temperature distribution at tool chip interface.		
	9 th	Numericals on cutting forces and Merchant circle.		
4 th	10 th	Cutting Tool Materials & Cutting Fluids: Characteristics of tool materials.	4 th	Study of Tool Wear of a cutting tool while drilling on a drilling machine.
	11 th	Various types of cutting tool materials, coated tools.		
	12 th	Cutting tool selection, Types of tool wear, tool life.		
5 th	13 th	Factors governing tool life, Purpose and types of cutting fluids.	5 th	Study of speed, feed, tool, preparatory (Geometric) and Miscellaneous functions for N.C. Part programming.
	14 th	Basic actions of cutting fluids.		
	15 th	Effect of cutting fluid on tool life, Selections of cutting fluid.		
6 th	16 th	Unconventional Machining Processes: Abrasive jet machining: Principles, applications, process parameters.	6 th	Part programming and proving on a NC Lathe for:- a) Outside Turning b) Facing & Step Turning c) Taper Turning d) Drilling e) Outside Threading.
	17 th	Ultrasonic machining: Principles, applications, analysis of process parameters.		

	18 th	Electro-chemical machining and grinding: Principles, classifications, choice of electrolytes, applications.		
7 th	19 th	Electric discharge machining: Principles, selection of tools materials and dielectric fluid.	7 th	Part programming and proving on a NC Milling machine:- (a) Point to Point programming (b) Absolute programming (c) Incremental programming.
	20 th	Electron beam machining: Generation of electron beam, relative merits and demerits.		
	21 st	Laser beam machining: Principles and applications.		
8 th	22 th	Jigs & Fixtures: Introduction, Location and Location devices.	8 th	Part programming and Proving for milling a Rectangular Slot.
	23 rd	Clamping & Clamping devices.		
	24 th	Drill Jigs, Milling Fixtures.		
9 th	25 th	Numerical Control of Machine Tools: Introduction, Numerical Control & its growth.		
	26 th	NC Machines tools, Axes of NC Machines.		
	27 th	Classification of NC System, CNC.		
10 th	28 th	DNC and Machining Centre.		
	29 th	Machine Control Unit.		
	30 th	NC Tools and Tool Changer.		
	31 st	Manual Part Programming: Coordinate, Feed, Speed & Tool.		

11 th	32 nd	Preparation & Miscellaneous functions.		
	33 rd	Examples of two axes part programming for Turning and Milling Operations.		
12 th	34 th	G & M Codes.		
	35 th	Group Technology: Definition and concept.		
	36 th	Group and Family, working of group technology.		
13 th	37 th	Stages for Adopting Group Technology, Advantages of Group Technology.		
	38 th	Component Classification and Coding: Personnel and Group Technology.		
	39 th	Planning the Introduction of Group Technology, Group Technology Layout.		
14 th	40 th	Numericals based on Merchant Circle.		
	41 th	Numericals based on Tool Life.		
	42 nd	Revision.		
15 th	43 rd	Revision.		
	44 th	Revision.		
	45 th	Revision.		