

LESSON PLAN FOR ACADEMIC SESSION 2026-27 (Winter)

Discipline: Mechanical Engg.	Semester:3RD	Name of the Teaching Faculty: ANUP RANA Designation: Lecturer S-1
Subject: MANUFACTURING PROCESSES (Th.1)	No. of days/week class allotted:03	Semester From: 01.07.2026 to 05.11.2026 No. of weeks: 15
Week	Class Day	Theory/Practical Topics
1 ST	1 st	Introduction to Subject, Cutting Fluids & Lubricants: Introduction
	2 nd	Types of cutting fluids
	3 rd	Fluids and coolants required in turning, drilling, shaping, sawing & broaching
2 ND	1 st	Selection of cutting fluids, methods of application of cutting fluid;
	2 nd	Classification of lubricants (solid, liquid, gaseous), Properties and applications of lubricants
	3 rd	Lathe Operations: Types of lathes — light duty, medium duty and heavy duty geared lathe
3 RD	1 st	CNC lathe; Specifications
	2 nd	Basic parts and their functions; Operations and tools — Turning, parting off, Knurling, facing
	3 rd	Boring, drilling, threading, step turning, taper turning
4 TH	1 st	Nomenclature of single point cutting tool of lathe.
	U 2 nd	Broaching Machines: Introduction to broaching
	3 rd	Types of broaching machines — Horizontal type (Single ram & duplex ram)
5 TH	1 st	Vertical type, pull up, pull down, and push down
	2 nd	Elements of broach tool; broach teeth details
	3 rd	Nomenclature; Tool materials
6 TH	1 st	Drilling: Classification
	2 nd	Basic parts and their functions; Radial drilling machine
	3 rd	Types of operations
7 TH	1 st	Class Test
	2 nd	Welding: Classification; Gas welding techniques
	U 3 rd	Types of welding flames
8 TH	1 st	Arc Welding – Principle, Equipment, Applications;
	2 nd	Shielded metal arc welding; Submerged arc welding; TIG / MIG welding
	3 rd	Resistance welding - Spot welding, Seam welding, Projection welding; Welding defects
9 th	1 st	Brazing and soldering: Types, Principles, Applications
	2 nd	Milling: Introduction; Types of milling machines: plain, Universal, vertical; constructional details — specifications
	3 rd	Milling operations: simple, compound and differential/ indexing; Milling cutters — types
10 TH	1 st	Nomenclature of teeth; Teeth materials; Tool signature of milling cutter; Tool & work holding devices
	U 2 nd	Gear Making: Manufacture of gears – by Casting, Moulding, Stamping
	3 rd	Coining Extruding, Rolling,
11 TH	1 st	Machining ; Gear generating methods
	2 nd	Gear Shaping with pinion cutter & rack cutter; Gear hobbing
	3 rd	Description of gear hob; Operation of gear hobbing machine; Gear finishing processes;
	1 st	Gear materials and specification; Heat treatment processes applied to gears

12 th	2 nd	Press working: Types of presses and Specifications, Press working operations - Cutting, bending, Drawing, punching, blanking, notching, lancing
	3 rd	Die set components- punch and die shoe, guide pin, bolster plate, stripper, stock guide, feed stock, pilot; Punch and die clearances for blanking and piercing, effect of clearance
13 th	1 st	Grinding and finishing processes: Principles of metal removal by Grinding; Abrasives — Natural & Artificial; Bonds and binding processes
	2 nd	Vitrified, silicate, shellac, rubber, Bakelite; Factors affecting the selection of grind wheels;
	3 rd	size and shape of wheel, kind of abrasive, grain size, grade and strength of bond, structure of grain, spacing, kinds of bind material
14 th	1 st	Standard marking systems: Meaning of letters & numbers sequence of marking, Grades of letters ;
	2 nd	Grinding machines classification:- Cylindrical, Surface, Tool & Cutter grinding machines; Construction details; Principle of centerless grinding
	3 rd	Finishing by grinding: Honing, Lapping, Super finishing; Electroplating; Basic principles, Plating metals, applications; Hot dipping: Galvanizing, Tin coating, Parkerizing, Anodizing
15 th	1 st	Metal spraying: wire process, powder process and applications; Organic coatings
	2 nd	Oil base Paint, Lacquer base, Enamels, Bituminous paints, nibber base coating;
	3 rd	Finishing specifications
REVISION		
TOTAL NO. OF CLASSES=45		

Prepared By:


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