

GOVT. POLYTECHNIC MAYURBHANJ

ACADEMIC SESSION-2025-26

LESSON PLAN

Discipline : Mechanical Engg.		Semester: 3rd Sem	Name of the Teaching Faculty : Mihir Mohanta	
SUBJECT- Manufacturing Process		No. of Days / per week class allotted : 03	Semester From date : 14.07.2026	To Date : 05.11.2026
MONTH	Week	Day	Topics	
JULY	3RD	2ND	1. Cutting Fluids & Lubricants: Discuss about cutting fluid and Types of cutting fluids.	
		3RD	Discuss Fluids and coolants required in turning, drilling, shaping, sawing & broaching	
		5TH	Explain the Selection of cutting fluids, methods of application of cutting fluid.	
		6TH	Classification of lubricants (solid, liquid, gaseous), Properties and applications of lubricants.	
	4TH	2ND	Classification of lubricants (solid, liquid, gaseous), Properties and applications of lubricants.	
		3RD	Revision	
		5TH	Lathe Operations: Types of lathes – light duty, medium duty and heavy duty geared lathe,	
	5TH	2ND	Basic parts and their functions of lathe	
		3RD	CNC lathe; Specifications; Basic parts and their functions	
		5TH	Operations and tools – Turning, parting off, Knurling, facing, Boring.	
AUGUST	1ST	6TH	Nomenclature of single point cutting tool of lathe	
		2ND	Revision	
	2ND	3RD	Broaching Machines: Introduction to broaching, Types of broaching machines Horizontal type (Single ram & duplex ram), Vertical type	
		5TH	pull up, pull down, and push down broaching machine	
		2ND	Elements of broach tool; broach teeth details; Nomenclature of broaching tool and Tool material	
	3RD	3RD	Nomenclature of broaching tool and Tool material	
		5TH	Revision	
	4TH	2ND	Drilling: Introduction to Drilling, Basic parts and their functions and Classification	
		3RD	Radial drilling machine, Basic parts and their functions, Types of operations;	
		5TH	Specifications of drilling machine, Types of drills and reamers.	
	5TH	2ND	Revision	
		5TH	Drilling: Introduction to Drilling, Basic parts and their functions and Classification	
		6TH	Radial drilling machine, Basic parts and their functions, Types of operations;	
SEPTEMBER	1ST	2ND	Specifications of drilling machine, Types of drills and reamers.	
		3RD	Revision	
		6TH	Welding: Classification; Gas welding techniques; Types of welding flames;	
	2ND	2ND	Arc Welding – Principle, Equipment, Applications; Shielded metal arc welding.	
		3RD	Submerged arc welding, TIG welding	
		5TH	MIG welding, Resistance welding - Spot welding.	
	3RD	5TH	Resistance welding Seam welding, Projection welding.	
		6TH	Welding defects	
	4TH	2ND	Brazing and soldering: Types, Principles, Applications.	
		3RD	Revision	
		5TH	Milling: Introduction; Types of milling machines: plain, Universal,	
	5TH	2ND	Milling, vertical milling machine, constructional details – specifications;	
		3RD	Milling operations: simple, compound indexing	
		6TH	Differential indexing; Milling cutters – types; Nomenclature of teeth;	
OCTOBER	1ST	6TH	Teeth materials; Tool signature of milling cutter; Tool & work holding devices.	
		2ND	Gear Making: Manufacture of gears – by Casting, Moulding, Stamping, Coining Extruding, Rolling, Machining	
		3RD	Gear generating methods: Gear Shaping with pinion cutter & rack cutter; Gear hobbing; Description of gear hob,	
		5TH	Operation of gear hobbing machine;	
		2ND	Gear finishing processes; Gear materials and specification; Heat treatment processes applied to gears.	
	3RD	3RD	Revision	
		5TH	Press working: Types of presses and Specifications, Press working operations - Cutting, bending, Drawing, punching, blanking, notching, lancing.	
			Die set components- punch and die shoe, guide pin, bolster plate, stripper, stock guide, feed stock, pilot.	
	4TH	2ND	Punch and die clearances for blanking and piercing, effect of clearance.	
		3RD	Revision	
	5TH	5TH	Grinding and finishing processes: Principles of metal removal by Grinding; Abrasives – Natural & Artificial; Bonds and binding processes: Vitrified, silicate, shellac, rubber, Bakelite.	
		2ND	Factors affecting the selection of grind wheels: size and shape of wheel, kind of abrasive, grain size, grade and strength of bond, structure of grain, spacing, kinds of bind material.	
		3RD	Standard marking systems: Meaning of letters & numbers sequence of marking, Grades of letters;	
		5TH	Grinding machines classification:- Cylindrical, Surface, Tool & Cutter grinding machines; Construction details; Principle of centerless grinding; Advantages & limitations of centerless grinding.	
		6TH	Finishing by grinding: Honing, Lapping, Super finishing. Electroplating: Basic principles, Plating metals, applications;	
NOVEMBER	1ST	2ND	Hot dipping: Galvanizing, Tincoating, Parkerizing, Anodizing; Metal spraying: wire process,	
			powder process and applications; Organic coatings: Oil base Paint, Lacquer base, Enamels, Bituminous paints, rubber base coating; Finishing specifications.	
		3RD		

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