

**PNS SCHOOL OF ENGINEERING & TECHNOLOGY, MARSHAGHAI, KENDRAPARA**  
**LESSON PLAN**

Discipline : Mechanical	Semester:3RD	Name of the Teaching Faculty : Er.SANYASI SWAIN
Subject : MP(TH-1)	No. of Days / per week class allotted : 4	Semester From date : 14.07.2025 to Date :15.11.2025 Weeks : 15
Week	Class Day	Topics
1st	1st	<b>UNIT-1 Cutting Fluids &amp; Lubricants:</b> Introduction;
	2nd	Types of cutting fluids, Fluids and coolants required in turning, drilling, shaping,
	3rd	Selection of cutting fluids
	4th	methods of application of cutting fluid; Classification of lubricants (solid, liquid,
2nd	1st	Properties and applications of lubricants.
	2nd	Types of lathes – light duty, Medium duty and heavy duty geared lathe
	3rd	CNC lathe; Specifications; Basic parts and their functions
	4th	Operations and tools – Turning, parting off, Knurling, facing, Boring
3rd	1st	drilling, threading, step turning, taper turning
	2nd	Nomenclature of single point cutting tool of lathe.
	3rd	<b>UNIT-II Broaching;</b> Introduction to broaching;
	4th	Types of broaching machines – Horizontal type (Single ram & duplex ram),
4th	1st	Broaching Machines of broach tool; broach teeth details;
	2nd	Classification; Basic parts and their functions
	3rd	Nomenclature; Tool materials.
	4th	Radial drilling machine; Types of operations
5th	1st	Specifications of drilling machine
	2nd	Types of drills and reamers.
	3rd	<b>UNIT-III Welding-</b> Classification; Gas welding techniques
	4th	Types of welding flames
6th	1st	Arc Welding – Principle, Equipment,
	2nd	Applications; Shielded metal arc welding; Submerged arc welding
	3rd	TIG / MIG welding; Resistance welding
	4th	Spot welding
7th	1st	Seam welding
	2nd	Projection welding;
	3rd	Welding defects
	4th	Brazing and soldering: Types, Principles, Applications
8th	1st	<b>Milling:</b> Introduction; Types of milling machines
	2nd	Plain, Universal, vertical; constructional details – specifications
	3rd	Milling operations: simple, compound indexing
	4th	Differential indexing
9th	1st	Milling cutters – types; Nomenclature of teeth
	2nd	Teeth materials; Tool signature of milling cutter
	3rd	Tool & work holding devices
	4th	<b>UNIT IV Gear Making:</b> Manufacture of gears – by Casting, Moulding

10th	1st	Stamping, Coining Extruding, Rolling, Machining;
	2nd	Gear generating methods: Gear Shaping with pinion cutter & rack cutter
	3rd	Gear hobbing; Description of gear hob; Operation of gear hobbing machine
	4th	Gear finishing processes
11th	1st	Gear materials and specification; Heat treatment processes
	2nd	<b>Press working:</b> Types of presses and Specifications
	3rd	Press working operations - Cutting, bending, Drawing, punching, blanking
	4th	Notching, lancing; Die set components
12th	1st	Punch and die clearances for blanking and piercing, effect of clearance.
	2nd	<b>UNIT-VGrinding and finishing processes:</b> Principles of metal removal
	3rd	Abrasives – Natural & Artificial
	4th	Bonds and binding processes: Vitrified, silicate, shellac, rubber, bakelite
13th	1st	Factors affecting the selection of grind wheels
	2nd	Standard marking systems
	3rd	Grinding machines classification-: Cylindrical, Surface
	4th	Tool & Cutter grinding machines
14th	1st	Principle of centreless grinding;
	2nd	Advantages & limitations of centreless grinding
	3rd	Finishing by grinding: Honing, Lapping, Super finishing
	4th	Basic principles, Plating metals, applications; Hot dipping: Galvanizing
15th	1st	Parkerizing, Anodizing; Metal spraying: wire process, powder process
	2nd	Organic coatings: Oil base Paint, Lacquer base, Enamels
	3rd	Bituminous paints& its application
	4th	Rubber base coating; Finishing specifications

Signature of Lecturer

Signature of H.O.D

Signature of Principal