

**GOVERNMENT POLYTECHNIC JAJPUR**

A/ P: Ragadi, Block: Korei, Dist.: Jajpur, Odisha- 755019

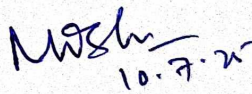
Website: <https://www.gpjajpur.org> E-mail: [principalgpjajpur@yahoo.co.in](mailto:principalgpjajpur@yahoo.co.in)

**DEPARTMENT OF PRECISION MANUFACTURING ENGINEERING**

**LESSON PLAN (2025-26)**

Discipline: PME	Semester : 3rd	Name of the Teaching faculty: Manas Kumar Mishra
Subject: Material technology	No of Days/Week class alloted: 3	Semester from Date: 14/07/25 To Date: 15/11/25 No of weeks: 18
Week	Class Day	Topics
1st	1st	Introduction to machine tools, Differences between machine and machine tools
	2nd	Types of cutting tools, Cutting tool materials-properties and types
	3rd	Cutting tool materials-properties, Single point cutting tool nomenclatures
2nd	1st	Cutting tool life and factors effecting tool life and tool wear.
	2nd	Orthogonal and Oblique cutting, Cutting forces in orthogonal and oblique cutting
	3rd	Chip formation process, temperature zone and forces.
3rd	1st	Types of chips and factors for producing each chip.
	2nd	Chip breaker and its types.
	3rd	Introduction to metal casting, Casting:steps involved in casting
4th	1st	Pattern for casting, Pattern making materials
	2nd	Moulding:sand-Moulding process
	3rd	Special casting processes - Die casting
5th	1st	Centrifugal casting
	2nd	Investment casting.
	3rd	Defects in casting and their remedies
6th	1st	Defects in casting and their remedies
	2nd	Advanced Welding Processes, Introduction, Classification
	3rd	Resistance welding - Spot, Seam
7th	1st	Projection welding, Advanced Arc welding types-Shielded metal arc welding.
	2nd	TIG & MIG welding
	3rd	Submerged arc welding, Plasma arc welding
8th	1st	Laser beam welding
	2nd	Defects in welding and their remedies
	3rd	Differences between Brazing and Soldering.
9th	1st	Press Work, Introduction
	2nd	Presses-Types

	3rd	Simple die, compound die and progressive die
10th	1st	Power press
	2nd	Press operations: Shearing, bending
	3rd	Drawing, punching
11th	1st	Blanking & notching
	2nd	Basic concepts of powder metallurgy
	3rd	Methods of powder metallurgy: producing powders
12th	1st	Mixing and compaction
	2nd	Sintering
	3rd	Secondary processes
13th	1st	Applications, advantages
	2nd	Limitations
	3rd	Economics of powder metallurgy
14th	1st	Cutting Fluids and Coolants, Introduction
	2nd	Purpose and Properties
	3rd	Types of coolants and lubricants
15th	1st	Coolants for different operations
	2nd	Lubricants for different operations
	3rd	Probable questions discussion
16th	1st	VST

  
 10.7.20  
 Sign of Teacher