GOVERNMENT POLYTECHNIC, JAJPUR
DEPARTMENT OF PRECISION MANUFACTURING ENGINEERING

LESSON PLAN

SUBJECT: MATERIAL TECHNOLOGY (TH4)

FACULTY: Mrs. SUNITA NAYAK

Sunita Nayak

ACCADEMIC SESSION: 2026-27

SEMESTER: 3RD

Sunita Nayak

HOD (PME)

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Discipline: **Precision Manufacturing Engg.**	**SEM-3RD**	**Name of the teaching faculty:** **Mrs. SUNITA NAYAK**
Subject: **Material Technology (Th4)**	**No. of days/week class allotted-** **3 Periods per week** **(Mon-1Period, Thu-1 Period, Fri-1Period)**	**Semester From Date: 01-07-2026 To Date: 05-11-2026** **No. of weeks: 19 weeks**
Week	**Class Day**	**Theory Topics**
1st	02/07/2026	Discussion of syllabus. Definition of different manufacturing technology and application of it.
	03/07/2026	**UNIT-I Basic of Machine Tools** 1.1 Introduction to machine tools. 1.2 Differences between machine and machine tools
2nd	06/07/2026	1.3 Types of cutting tools 1.4 Cutting tool materials-properties and types.
	09/07/2026	1.5 Single point cutting tool nomenclatures.
	10/07/2026	1.6 Cutting tool life and factors effecting tool life and tool wear.
3rd	13/07/2026	1.7 Orthogonal and Oblique cutting.
	17/07/2026	1.8 Cutting forces in orthogonal and oblique cutting
4th	20/07/2026	1.9 Chip formation process, temperature zone and forces
	23/07/2026	1.10 Types of chips and factors for producing each chip.
	24/07/2026	1.11 Chip breaker and its types.
5th	27/07/2026	**UNIT-II Metal Casting Process** 2.1 Introduction to metal casting
	30/07/2026	2.2 Casting: steps involved in casting
	31/07/2026	2.3 Pattern for casting

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6th	03/08/2026	2.4 Pattern making materials
	06/08/2026	2.5 Moulding: sand-Moulding process
	07/08/2026	2.6 Special casting processes - Die casting
7th	10/08/2026	2.6 Investment casting.
	13/08/2026	2.6 Centrifugal casting
	14/08/2026	2.7 Defects in casting and their remedies
8th	17/08/2026	**UNIT-III Advanced Welding Processes** 3.1 Introduction. 3.2 Classification of welding process
	20/08/2026	3.3 Resistance welding - Spot, Seam welding
	21/08/2026	3.3 Projection welding
9th	24/08/2026	3.4 Advanced Arc welding types-Shielded metal arc welding
	28/08/2026	3.4 TIG welding
10th	01/09/2026	3.4 MIG welding
	03/09/2026	3.4 Submerged arc welding
11th	07/09/2026	3.4 Plasma arc welding
	10/09/2026	3.4 Laser beam welding.
	11/09/2026	3.5 Defects in welding and their remedies
12th	17/09/2026	3.5 Defects in welding and their remedies
	18/09/2026	3.6 Differences between Brazing and Soldering.
13th	21/09/2026	UNIT-IV Press Work 4.1 Introduction.
	24/09/2026	4.2 Presses-Types-Power press
	25/09/2026	4.3 Press operations: Shearing, bending, drawing, punching, blanking & notching,

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14th	28/09/2026	4.3 Press operations: Shearing, bending, drawing, punching, blanking & notching,
	01/10/2026	4.3 Press operations: Shearing, bending, drawing, punching, blanking & notching
15th	05/10/2026	UNIT-V Powder Metallurgy 5.1 Basic concepts of powder metallurgy.
	08/10/2026	5.2 Methods of powder metallurgy.
	09/10/2026	5.2 Methods of powder metallurgy.
16th	12/10/2026	5.2 Methods of powder metallurgy
	15/10/2026	5.3 Applications, merits and limitations of powder metallurgy
	16/10/2026	5.3 Applications, merits and limitations of powder metallurgy
17th	22/10/2026	UNIT-VI Cutting Fluids and Coolants 6.1 Introduction.
	23/10/2026	6.2 Purpose and Properties.
18th	26/10/2026	6.2 Purpose and Properties.
	29/10/2026	Coolants and lubricants for different operations
	30/10/2026	Revision
19th	02/11/2026	Revision
	05/11/2026	Revision