

GOVERNMENT POLYTECHNIC SONEPUR

DEPARTMENT OF MECHANICAL ENGINEERING



LESSON PLAN

FACULTY: ER PRABIR KUMAR SWAIN

ACADEMIC SESSION: 2026-27(W)

SUBJECT: ADVANCED MANUFACTURING PROCESS (TH-4B)

SEMESTER: 5TH

H.O.D (Mechanical)

Govt. Polytechnic, Sonepur

Discipline: Mechanical Engg.	5TH SEMESTR	Name of the Teaching Faculty: PRABIR KUMAR SWAI Designation: Lecturer S-II(MECHANICAL)
ADVANCED MANUFACTURG PROCESS (TH-4 B)	CLASS DAY	Semester From date: 01.07.2026 To date: 05.11.2026 No. of weeks: 19 Total class:
Week		Theory Topics
1ST	1ST	Introduction to advanced manufacturing process and syllabus discussion.
	2ND	Unconventional machining Process –Need – classification – Brief overview
	3RD	Unconventional machining Process – Need – classification – Brief overview
2ND	1ST	Additive Manufacturing Process: Introduction, Need for Additive Manufacturing
	2ND	Fundamentals of Additive Manufacturing, AM Process Chain,
	3RD	Advantages and Limitations of AM
3RD	1ST	Mechanical Energy Based Processes: Abrasive Jet Machining, Working Principles – equipment used – Process parameters – MRR- Applications.
	2ND	Water Jet Machining Working Principles – equipment used – Process parameters – MRR- Applications.
	3RD	Abrasive Water Jet Machining Working Principles – equipment used – Process parameters – MRR- Applications.
	1ST	Ultrasonic Machining. Working Principles – equipment used – Process

4 TH		parameters – MRR- Applications.
	2 ND	Electrical Energy Based Processes: Electric Discharge Machining (EDM)- working Principle – equipment
	3 RD	Process Parameters – Surface Finish and MRR- electrode /
5 TH	1 ST	Tool – Power and control Circuits – Tool Wear – Dielectric – Flushing
	2 ND	Wire cut EDM – Applications
	3 RD	Chemical and Electro-Chemical Energy Based Processes: Chemical machining
6 TH	1 ST	Electro-Chemical machining (CHM and ECM)- Principles of ECM Etchants – Maskant techniques of applying maskants - Process Parameters
	2 ND	Surface finish and MRR-Applications.
	3 RD	equipment-Surface Roughness and MRR Electrical Circuit-Process Parameters
7 TH	1 ST	ECG
	2 ND	ECH – Applications
	3 RD	Thermal Energy Based Processes: Laser Beam machining Principles – Equipment –Types - Beam control techniques – Applications.
	1 ST	drilling (LBM), Principles – Equipment –Types - Beam control techniques – Applications.

8 TH		
	2 ND	plasma Arc machining (PAM) Principles – Equipment – Types - Beam control techniques – Applications.
	3 RD	Electron Beam Machining (EBM). Principles – Equipment –Types - Beam control techniques – Applications.
9 th	1 ST	Introduction to manufacturing; Fundamental properties of including metals,
	2 ND	Introduction to manufacturing; Fundamental properties of including metals,
	3 RD	Introduction to manufacturing; Fundamental properties of including polymers.
10 TH	1 ST	Introduction to manufacturing; Fundamental properties of including, polymers,
	2 ND	Introduction to manufacturing; Fundamental properties of including ceramics
	3 RD	Introduction to manufacturing; Fundamental properties of Including ceramics .
11 TH	1 ST	Introduction to manufacturing; Fundamental properties of composites.
	2 ND	Introduction to manufacturing; Fundamental properties of composites.
	3 RD	Revision
12 th	1 ST	Revision
	2 ND	Revision
	3 RD	Revision

13 TH	1 ST	revision
	2 ND	Revision
	3 RD	Revision
14 th	1 ST	Revision
	2 ND	Revision
	3 RD	Revision
15 th	1 ST	Revision
	2 ND	Revision
	3 RD	Revision
16 th	1 ST	Revision
	2 ND	Revision
	3 RD	Revision
17 th	1 ST	Revision
	2 ND	Revision
	3 RD	Revision
18 th	1 ST	Revision
	2 ND	Revision
	3 RD	Revision

19 th	1 ST	Revision
	2 ND	Revision
	3 RD	Revision


24/06/2025

Prepared By:

Prabir kumar swain
Lecturer stage-ii(Mechanical)
Govt. Polytechnic,Sonepur

Checked by


15/06/26
H.O.D.

Dept. of Mech. Engg.
Govt. Polytechnic,Sonepur

Approved by


24/06/26
Academic Coordinator
Govt. Polytechnic,Sonepur