

BIT POLYTECHNIC, BALASORE



**LESSON PLAN**  
**Session 2025-2026**

Semester: 3RD

Subject: MANUFACTURING TECHNOLOGY

Faculty Name: KHAGEN MAHARNA

Subject: MT

Semester from date:

to date:

No. of Weeks: 15

Week	Class Day	Theory topics
1	1	Introduction to Tool Materials.
	2	Composition of various tool materials
	3	Physical properties such tool materials
	4	Uses of such tool materials.
2	1	Introduction to Cutting Tools.
	2	Cutting action of various and tools such as Chisel, hacksaw blade.
	3	Dies and reamer.
	4	Turning tool geometry and purpose of tool angle.
3	1	Machining process parameters (Speed, feed and depth of cut).
	2	Coolants and lubricants in machining and purpose.
	3	Introduction to Lathe Machine. Construction and working of lathe and CNC lathe
	4	Major components of a lathe and their function
4	1	Previous year questions solving.
	2	Capstan lathe Difference with respect to engine lathe
	3	Major components of Capstan lathe and their function.
	4	Turret Lathe Difference with respect to capstan lathe.
5	1	Major components of Turret Lathe and their function.
	2	Draw the tooling layout for preparation of a hexagonal bolt & bush
	3	Introduction to Shaper.
	4	Potential application areas of a shaper machine.
6	1	Major components and their function.
	2	Explain the automatic feed mechanism.
	3	Explain the construction & working of tool head.
	4	Explain the quick return mechanism through sketch.
7	1	Introduction to Planning Machine.
	2	Application area of a planer and its difference with respect to shaper.
	3	Major components and their functions.
	4	The table drive mechanism.

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Week	Class Day	Theory topics
8	1	Working of tool and tool support.
	2	Clamping of work through sketch.
	3	Introduction to Milling Machine.
	4	Types of milling machine and operations performed by them.
9	1	Types of CNC milling machine and operations performed by them.
	2	Explain work holding attachment.
	3	Construction & working of simple dividing head.
	4	Construction & working of universal dividing head.
10	1	Procedure of simple and compound indexing.
	2	Illustration of different indexing methods.
	3	Introduction to Slotter.
	4	Major components of Slotter.
11	1	Major functions of Slotter.
	2	Construction of slotter machine.
	3	Working of slotter machine.
	4	Tools used in slotter
12	1	Introduction to Grinding.
	2	Significance of grinding operations
	3	Manufacturing of grinding wheels
	4	Criteria for selecting of grinding wheels
13	1	Working of Cylindrical Grinder & Surface Grinder.
	2	Working of Centreless Grinder.
	3	Introduction to Internal Machining operations.
	4	Classification of drilling machines.
14	1	Working of Bench drilling machine, Pillar drilling machine, Radial drilling machine.
	2	Basic Principle of Boring, Different between Boring and drilling
	3	Types of Broaching (pull type, push type).
	4	Advantages of Broaching and applications.
15	1	Introduction to Surface finish, lapping.
	2	Definition of Surface finish.
	3	Description of lapping.
	4	Explain their specific cutting.

Signature of Faculty