

# Spintronic Technology and Advance Research

## MECHANICAL ENGINEERING

SUBJECT-Manufacturing Engg.

LESSON PLAN SESSION-2025-26 (Summer 2025)

SEM-4<sup>TH</sup>

NAME OF THE FACULTY- Er. B.B.SAHOO (Asst. Prof.)

SL. NO.	NO OF PERIOD (TOPIC WISE)	TOTAL NO PERIOD	Cumulative no of periods
1	<b>Tool Materials</b>	1	1
2	Composition of various tool materials	1	2
3	Physical properties & uses of such tool materials	1	3
4	<b>Cutting Tools</b>	1	4
5	Cutting action of various hand tools such as Chisel, hack saw blade, dies and reamer	1	5
6	Turning tool geometry and purpose of tool angle	1	6
7	Machining process parameters (Speed, feed and depth of cut)	1	7
8	Coolants and lubricants in machining and purpose	1	8
9	<b>Lathe Machine</b>	1	9
10	Construction and working of lathe	1	10
11	Major components of a lathe and their function	1	11
12	Operations carried out in a lathe (Turning, thread cutting, taper turning, internal machining, parting off, facing, knurling)	1	12
13	Capstan lathe	1	13
14	Difference with respect to engine lathe	1	14
15	Major components and their function	1	15
16	Define multiple tool holders	1	16
17	Turret Lathe	1	17
18	Difference with respect to capstan lathe	1	18
19	Major components and their function	1	19
20	Draw the tooling lay out for preparation of a hexagonal bolt & bush	1	20
21	<b>Shaper</b>	1	21
22	Potential application areas of a shaper machine	1	22
23	Major components and their function	1	23
24	Explain the automatic table feed mechanism	1	24
25	Explain the construction & working of tool head	1	25
26	Explain the quick return mechanism through sketch	1	26
27	State the specification of a shaping machine	1	27
28	<b>Planning Machine</b>	1	28
29	Application area of a planar and its difference with respect to shaper	1	29
30	Major components and their functions	1	30
31	The table drive mechanism	1	31
32	Working of tool and tool support	1	32

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33	Clamping of work through sketch	1	33
34	<b>Milling Machine</b>	1	34
35	Types of milling machine and operations performed by them	1	35
36	Explain work holding attachment	1	36
37	Construction & working of simple dividing head, universal dividing head Procedure of simple and compound indexing	1	37
38	Illustration of different indexing methods	1	38
39	<b>Slotter</b>	1	39
40	Major components and their function	1	40
41	Construction and working of slotter machine	1	41
42	Tools used in slotter	1	42
43	<b>Grinding</b>	1	43
44	Significance of grinding operations	1	44
45	Manufacturing of grinding wheels	1	45
46	Criteria for selecting of grinding wheels	1	46
47	Specification of grinding wheels with example	1	47
48	Working of □ Cylindrical Grinder	1	48
49	Surface Grinder	1	49
50	Centre less Grinder	1	50
51	<b>Internal Machining operations</b> 6 Classification of drilling machines	1	51
52	Working of □ Bench drilling machine	1	52
53	Pillar drilling machine	1	53
54	Radial drilling machine	1	54
55	Boring □ Basic Principle of Boring	1	55
56	Different between Boring and drilling	1	56
57	Broaching □ Types of Broaching (pull type, push type)	1	57
58	<b>Surface finish, lapping</b> Definition of Surface finish	1	58
59	Define super finishing	1	59
60	Description of lapping & explain their specific cutting	1	60

**Reference Books .** Work shop Technology Part-I & II by W.A.S Chapman

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Manufacturing Technology by P. N. Rao, Vol.- I, Vol.- II

Work shop Technology Part-I & II by W.A.S Chapman