



**Department of \_\_\_\_\_ Mechanical Engineering \_\_\_\_\_**  
**Raajdhani Engineering College, Bhubaneswar, Odisha-751017**

**LESSON PLAN**

Faculty Name	Prof. Ratikanta saho			Name of the Program	Diploma in Mechanical Engineering
SubjectName	MANUFACTURING TECHNOLOGY			Subject Code	TH 2-(C209)
Course Year	2 <sup>nd</sup> year	Semester	4 <sup>th</sup>	Academic Period	2023-24
No. of Classes allotted per Week	4		Planned Classes Required to Complete the Course	60	

Sl. No.	Topics to be covered	chapters	No. of hours Required	Mode of Teaching	CO	BOOK	CHAPTER (PAGES)	OTHER SOURCE(IM)
1	<b>1.0 Tool Materials</b> introduction	I	1	LM/ IM	CO1	T1	4 :94	
2	1.1 Composition of various tool materials	I	1	LM/ IM	CO1	T1	4: 96-100	<a href="https://youtu.be/qpHIlkSF4N4">https://youtu.be/qpHIlkSF4N4</a>
3	1.2 Physical properties&	I	1	LM/ IM	CO1	T1	4:100-105	
4	uses of such tool materials.	I	1	LM/ IM	CO1	T1	4: 105-110	
5	<b>2.1 Cutting Tools</b>	I	1	LM/ IM	CO1	T1	20: 774-778	<a href="https://youtu.be/iOP_uLEuJw">https://youtu.be/iOP_uLEuJw</a>



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6	2.1 Cutting action of various and tools such as Chisel, hacksaw blade	I	1	LM/ IM	CO1	T1	20: 774-778	
7	Cutting action of various and tools such as dies and reamer		1					
8	2.3 Turning tool geometry and purpose of tool angle		1					
9	2.5 Machining process parameters (Speed, feed and depth of cut)	2	1	LM/ IM	CO2	T1	10:258-272	<a href="https://youtu.be/OZ4fTZK71yw">https://youtu.be/OZ4fTZK71yw</a>
10	2.6 Coolants and lubricants in machining and purpose	2	1	LM/ IM	CO2	T1	10:278-285	<a href="https://youtu.be/vHZ6rgQLakY">https://youtu.be/vHZ6rgQLakY</a>
11	<b>3.0 Lathe Machine</b> <b>3.1</b> Construction and working of lathe and CNC lathe Major components of a lathe and their function	2	1	LM/ IM	CO2	T1	10:285-290	
12	Operations carried out in a lathe(Turning, thread cutting, taper turning, internal machining, parting off, facing, knurling) Safety measures during machining	2	1	LM/ IM	CO2	T1	10:258-324	



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13	<b>3.2 Capstan lathe</b> Difference with respect to engine lathe	2	1	LM	CO2	T1	10:290-292	
14	<b>3.2 Capstan lathe</b> Major components and their function	2	1	LM	CO2	T1	10:292-297	
15	<b>3.2 Capstan lathe</b> Define multiple tool holders	2	1	LM	CO2	T1	10:297-302	
16	<b>3.3 Turret Lathe</b> Difference with respect to capstan lathe	2	1	LM	CO2	T1	10:302-309	
17	□ □ Major components and their function	2	1	LM	CO2	T1	19:732-753	
18	<b>3.4 Draw the tooling layout for preparation of a hexagonal bolt &amp; bush</b>	2	1	LM	CO2	T1	19:762-766	
19	<b>4.0 Shaper</b> 4.1 Potential application areas of a shaper machine	2	1					



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20	4.2 Major components and their function	2	1					
20	4.2 Major components and their function	3	1	LM	CO3	T1	11:325-330,365-371,	
21	4.3 Explain the automatic able feed mechanism	3	1	LM	CO3	T1	11:330-333	
22	4.4 Explain the construction &working of tool head	3	1	LM/IM	CO3	T1	11:334-337	
23	4.5 Explain the quick return mechanism through sketch	3	1	LM/IM	CO3	T1	11:340-341	
24	4.6 State the specification of a shaping machine	3	1	LM/IM	CO3	T1	11:345-347	
25	<b>5.0 Planning Machine</b> 5.1 Application area of a planer and its difference with respect to shaper	3	1	LM/IM	CO3	T1	11:346-350	
26	5.2 Major components and their functions	3	1	LM/IM	CO3	T1 T3	11:330-381 10:530	



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27	5.2 Major components and their functions	3	1	LM/IM	CO3	T1	12:382-388 13:428-431	
28	5.3 The table drive mechanism	3	1	LM/IM	CO3	T1	13:434-436	
29	5.4 Working of tool and tool support	3	1	LM/IM	CO3	T1	12:390-427 13:438-450	
30	5.5 Clamping of work through sketch.		1					
31	<b>6.0 Milling Machine</b> 6.1 Types of milling machine and operations performed by them and also same for CNC milling machine		1					
32	6.1 Types of milling machine and operations performed by them and also same for CNC milling machine	4	1	LM/IM	CO4	T1	18:653-655	
33	6.2 Explain work holding attachment	4	1	LM/IM	CO4	T1	18:656-659	
34	6.2 Explain work holding attachment	4	1	LM/IM	CO4	T1	18:653-679	



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35	6.3 Construction & working of simple dividing head, universal dividing head	4	1	LM/IM	CO4	T1	18:678-690	
36	6.3 Construction & working of simple dividing head, universal dividing head	4	1	LM/IM	CO4	T1	18:653-731	
37	6.4 Procedure of simple and compound indexing	4	1	LM/IM	CO4	T1	18:700-701	
38	6.5 Illustration of different indexing methods	4	1	LM/IM	CO4	T1	16:570-571	
39	<b>7.0 Slotter</b> 7.1 Major components and their function	4	1	LM/IM	CO4	T1	16:571-572	
40	7.1 Major components and their function	4	1	LM/IM	CO4	T1	16:570-575	
41	7.2 Construction and working of slotter machine	4	1	LM/IM	CO4	T1	16:565-591	
42	7.2 Construction and working of slotter machine		1					



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43	7.3 Tools used in slotter		1					
44	7.3 Tools used in slotter	5	1	LM /IM	CO5	T1	21:833-835	
45	<b>8.0 Grinding</b> 8.1 Significance of grinding operations	5	1	LM /IM	CO5	T1	21:835-837	
46	8.2 Manufacturing of grinding wheels	5	1	LM /IM	CO5	T1	21:837-839	
47	8.3 Criteria for selecting of grinding wheels	5	1	LM /IM	CO5	T1	22:858-861	
48	8.3 Criteria for selecting of grinding wheels	5	1	LM /IM	CO5	T1	22:858-908	
49	8.4 Specification of grinding wheels with example Working of ,Cylindrical Grinder ,Surface Grinder ,Centreless Grinder	5	1	LM /IM	CO5	T1	22:858-908	
50	8.4 Specification of grinding wheels with example Working of ,Cylindrical Grinder ,Surface Grinder ,Centreless	5	1	LM /IM		T1		



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	Grinder							
51	9.0 Internal Machining operations Classification of drilling machines 9.1 Working of Bench drilling machine ,Pillar drilling machine ,Radial drilling machine	5	1			T1	23:909	
52	Classification of drilling machines 9.1 Working of Bench drilling machine ,Pillar drilling machine ,Radial drilling machine	6	1	LM/IM	CO6	T1	23:909-910	
53	9.2 Boring ,Basic Principle of Boring ,Different between Boring and drilling	6	1	LM/IM	CO6	T1	23:910	
54	9.2 Boring ,Basic Principle of Boring ,Different between Boring and drilling	6	1	LM/IM	CO6	T1	23:916-960	
55	9.3 Broaching ,Types of Broaching(pull type, push type) ,Advantages of Broaching and applications	6	1	LM/IM	CO6	T1	24:910-911	



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56	9.3 Broaching ,Types of Broaching(pull type, push type) ,Advantages of Broaching and applications	6	1	LM/IM	CO6	T1	24:910	
57	10 Surface finish, lapping 10.1 Definition of Surface finish	6	1	LM/IM	CO6	T1	24:972-1001 25:973-983	
58	10 Surface finish, lapping 10.1 Definition of Surface finish	6	1	LM/IM	CO6			
59	10.2 Description of lapping& explain their specific cutting		1	LM/IM	CO6			
60	10.2 Description of lapping& explain their specific cutting		1	LM/IM				

**LM: Learner Mode:** Chalk & Talk, Lecture

**IM: Interactive Mode:** PPT, VIDEO and Animation

**T1:** Text Book of Theory of Machine by R.S Khurmi, S.Chand publisher

**T2:** Text Book of Theory of Machine by R.K. Rajput ,S.Chand publisher



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**T3:** Text Book of Theory of Machine by P.L.Ballany, Dhanpat Rai publisher.

**R1:**Text Book of Theory of Machine by R.K. Bansal ,Laxmi publisher

**T1:** Text Book of Workshop Technology by Hazra Choudhury Vol-I & II, MPP Pvt. Ltd

**T2:** Text Book of Workshop Technology by R.K. Rajput ,S.Chand publisher

**T3:** Text Book of Theory of Machine by P.L.Ballany, Dhanpat Rai publisher.

**R1:**Text Book of Theory of Machine by R.K. Bansal ,Laxmi publisher

Text Book of Workshop Technology	Hazra Choudhury Vol-I & II	MPP Pvt. Ltd.
2.	Text Book of Workshop Technology	W.A.S Chapman Vol-I & II
3.	Text Book of Manufacturing Process	P.N Rao

Signature of the Faculty

Signature of the HOD