

## Lesson Plan

Name of the Faculty : Sh. Subhash Chander  
 Discipline : Mechanical Engineering  
 Semester : 5<sup>th</sup>  
 Subject : Workshop Technology-III  
 Lesson Plan duration : 15 weeks (01.09.2023 to 15.12.2023)  
 Work load per week : Lecture – 03, Practical- 00

Week	Theory		EXECUTION	
	Lecture Day	Topic (Including assessment/test)	Date	Sign.
1 <sup>st</sup>	1 <sup>st</sup>	Introduction about the subject and brief overview.		
	2 <sup>nd</sup>	<b>1. Milling:</b> 1.1 Specification and working principle of milling machine		
	3 <sup>rd</sup>	1.2 Classification, brief description and applications of milling machine		
2 <sup>nd</sup>	4 <sup>th</sup>	1.3 Details of column and knee type milling machine		
	5 <sup>th</sup>	1.4 Milling machine accessories and attachment – Arbors, adaptors, collets, vices,		
	6 <sup>th</sup>	1.4 circular table, indexing head and tail stock, vertical milling attachment, rotary table		
3 <sup>rd</sup>	7 <sup>th</sup>	1.5 Milling methods - up milling and down milling		
	8 <sup>th</sup>	1.6 Identification of different milling cutters and work mandrels		
	9 <sup>th</sup>	1.7 Work holding devices		
4 <sup>th</sup>	10 <sup>th</sup>	1.8 Milling operations – face milling, angular milling, form milling, straddle milling and gang milling		
	11 <sup>th</sup>	1.9 Cutting speed and feed, Simple numerical problems. 1.10 Thread milling		

	12 <sup>th</sup>	<b>2. Gear Manufacturing And finishing Processes:</b> 2.1 Gear Hobbing		
5 <sup>th</sup>	13 <sup>th</sup>	2.2 Gear Shaping		
	14 <sup>th</sup>	2.3 Gear Finishing processes		
	15 <sup>th</sup>	<b>3. Grinding:</b> 3.1 Purpose of grinding, 3.2 Various elements of grinding wheel – Abrasive, Grade, structure, Bond		
6 <sup>th</sup>	16 <sup>th</sup>	3.3 Common wheel shapes and types of wheel – built up wheels, mounted wheels and diamond wheels.		
	17 <sup>th</sup>	<b>1<sup>st</sup> Sessional test (Tentative)</b>		
	18 <sup>th</sup>	3.3 Specification of grinding wheels as per BIS 3.4 Truing, dressing, balancing and mounting of wheel		
7 <sup>th</sup>	19 <sup>th</sup>	3.5 Grinding methods – Surface grinding, cylindrical grinding and centerless grinding.		
	20 <sup>th</sup>	3.6 Grinding machine – Cylindrical grinder, surface grinder, internal grinder, centerless grinder, Tool and cutter grinder.		
	21 <sup>st</sup>	3.7 Selection of grinding wheel 3.8 Thread Grinding		
8 <sup>th</sup>	22 <sup>nd</sup>	<b>4. Modern Machining Processes</b> 4.1 Mechanical Process - Ultrasonic machining (USM): Introduction, principle, process, Advantages and limitations, applications.		
	23 <sup>rd</sup>	4.2 Electro Chemical Processes - Electro chemical machining (ECM) – Fundamental principle, process, applications		
	24 <sup>th</sup>	4.3 Electrical Discharge Machining (EDM) - Introduction, basic EDM circuit, Principle		
9 <sup>th</sup>	25 <sup>th</sup>	4.3 Electrical Discharge Machining (EDM) - Introduction, basic EDM circuit, Principle		
	26 <sup>th</sup>	4.3 Metal removing rate, dielectric fluid, applications		
	27 <sup>th</sup>	4.4 Laser beam machining (LBM) – Introduction, machining process and applications		
10 <sup>th</sup>	28 <sup>th</sup>	4.5 Plasma Arc Machining and Welding – Introduction, principle, process, applications		
	29 <sup>th</sup>	<b>2<sup>nd</sup> Sessional test (Tentative)</b>		

	30 <sup>th</sup>	<b>5. Metallic Coating Processes</b> 5.1 Metal spraying - Wire process, Powder coating process, applications		
11 <sup>th</sup>	31 <sup>st</sup>	5.2 Electro plating, Anodizing & galvanizing,		
	32 <sup>nd</sup>	5.3 Organic Coatings- oil base paint, rubber base coating		
	33 <sup>rd</sup>	<b>6. Metal Finishing Processes</b> 6.1 Purpose of finishing surfaces. 6.2 Surface roughness-Definition and units		
12 <sup>th</sup>	34 <sup>th</sup>	6.3 Honing Process, its applications. 6.4 Description of hones.		
	35 <sup>th</sup>	6.5 Brief idea of honing machines.		
	36 <sup>th</sup>	6.6 Lapping process, its applications.		
13 <sup>th</sup>	37 <sup>th</sup>	6.7 Description of lapping compounds and tools.		
	38 <sup>th</sup>	6.8 Brief idea of lapping machines.		
	39 <sup>th</sup>	6.9 Polishing. 6.10 Buffing. 6.11 Burnishing		
14 <sup>th</sup>	40 <sup>th</sup>	Revision		
	41 <sup>st</sup>	<b>3<sup>rd</sup> Sessional test (Tentative)</b>		
	42 <sup>nd</sup>	<b>Assessment</b>		
15 <sup>th</sup>	43 <sup>rd</sup>	Revision		
	44 <sup>th</sup>	Revision		
	45 <sup>th</sup>	Revision		