Lesson Plan

Name of the Faculty : Sh. Subhash Chander

Discipline : Mechanical Engineering

Semester : 5th

Subject : Workshop Technology-III

Lesson Plan duration : 17 weeks (01.10.2021 to 28.01.2022)

Work load per week : Lecture – 03, Practical- 00

Week	Theory	
	Lecture Day	Topic (Including assessment/test)
1st	1st	Subject introduction and overview
	2nd	**1. Milling:** 1.1 Specification and working principle of milling machine
	3rd	1.2 Classification, brief description and applications of milling machine
2nd	4th	1.3 Details of column and knee type milling machine
	5th	1.4 Milling machine accessories and attachment – Arbors, adaptors, collets, vices,
	6th	1.4 circular table, indexing head and tail stock, vertical milling attachment, rotary table
3rd	7th	1.5 Milling methods - up milling and down milling
	8th	1.6 Identification of different milling cutters and work mandrels
	9th	1.7 Work holding devices
4th	10th	1.8 Milling operations – face milling, angular milling, form milling, straddle milling and gang milling
	11th	1.9 Cutting speed and feed, Simple numerical problems. 1.10 Thread milling
	12th	**2. Gear Manufacturing And finishing Processes:** 2.1 Gear Hobbing
5th	13th	2.2 Gear Shaping
	14th	2.3 Gear Finishing processes

	15th	**3. Grinding:** 3.1Purpose of grinding, 3.2 Various elements of grinding wheel – Abrasive, Grade, structure, Bond
6th	16th	3.3 Common wheel shapes and types of wheel – built up wheels, mounted wheels and diamond wheels.
	17th	3.3 Specification of grinding wheels as per BIS
	18th	3.4 Truing, dressing, balancing and mounting of wheel
7th	19th	**1st Sessional test (Tentative)**
	20th	**Assessment**
	21st	3.5 Grinding methods – Surface grinding, cylindrical grinding and centerless grinding.
8th	22nd	3.6 Grinding machine – Cylindrical grinder, surface grinder, internal grinder, centerless grinder, Tool and cutter grinder.
	23rd	3.7 Selection of grinding wheel
	24th	3.8 Thread Grinding
9th	25th	**4. Modern Machining Processes** 4.1 Mechanical Process - Ultrasonic machining (USM): Introduction, principle, process, Advantages and limitations, applications.
	26th	4.2 Electro Chemical Processes - Electro chemical machining (ECM) – Fundamental principle, process, applications
	27th	4.3 Electrical Discharge Machining (EDM) - Introduction, basic EDM circuit, Principle
10th	28th	4.3 Metal removing rate, dielectric fluid, applications
	29th	4.4 Laser beam machining (LBM) – Introduction, machining process and applications
	30th	4.5 Plasma Arc Machining and Welding – Introduction, principle, process, applications
11th	31st	**2nd Sessional test (Tentative)**
	32nd	**Assessment**
	33rd	**5. Metallic Coating Processes** 5.1 Metal spraying - Wire process,
12th	34th	5.1 Powder coating process, applications

	35th	5.2 Electro plating, Anodizing & galvanizing,
	36th	5.3 Organic Coatings- oil base paint, rubber base coating
13th	37th	**6. Metal Finishing Processes** 6.1 Purpose of finishing surfaces. 6.2 Surface roughness-Definition and units
	38th	6.3 Honing Process, its applications. 6.4 Description of hones.
	39th	6.5 Brief idea of honing machines.
14th	40th	6.6 Lapping process, its applications.
	41st	6.7 Description of lapping compounds and tools.
	42nd	6.8 Brief idea of lapping machines.
15th	43rd	6.9 Polishing. 6.10 Buffing. 6.11 Burnishing
	44th	**3rd Sessional test (Tentative)**
	45th	**Assessment**
16th	46th	Revision
	47th	Revision
	48th	Revision
17th	49th	Revision
	50th	Revision
	51st	Revision