LESSON PLAN

NAME OF THE FACULTY: SH HITESH AGGARWAL

DISCIPLINE: MECHANICAL ENGINEERING

SEMESTER: V

SUBJECT: WORKSHOP TECHNOLOGY - III

LESSON PLAN DURATION: 15 WEEKS

WORK LOAD (LECTURE/PRACTICAL) PER WEEK: (3 lectures)

WEEK	THEORY	
	LECTURE NOS	TOPIC
1st	1	**Milling** 1.1 Specification and working principle of milling machine
	2	1.2 Classification, brief description and applications of milling machines
	3	1.3 Details of column and knee type milling machine
2nd	4	1.4 Milling machine accessories and attachment – Arbors, adaptors, collets, vices, circular table, indexing head and tail stock, vertical milling attachment, rotary table.
	5	1.5 Milling methods - up milling and down milling
	6	1.6 Identification of different milling cutters and work mandrels
3rd	7	1.7 Work holding devices
	8	1.8 Milling operations – face milling, angular milling, form milling, straddle milling and gang milling.
	9	1.9 Cutting speed and feed, simple numerical problems.
4th	10	1.10 Thread milling
	11	**Gear Manufacturing and Finishing Processes**
	12	Gear hobbing
5th	13	Gear shaping
	14	Gear finishing processes
	15	REVISION OF SYLLABUS
6th	16	**SESSIONAL I**
	17	**Grinding**
	18	3.1 Purpose of grinding

7th	**19**	3.2 Various elements of grinding wheel – Abrasive, Grade, structure, Bond
	20	3.3 Common wheel shapes and types of wheel – built up wheels, mounted wheels and diamond wheels. Specification of grinding wheels as per BIS.
	21	3.4 Truing, dressing, balancing and mounting of wheel. 3.5 Grinding methods – Surface grinding, cylindrical grinding and centreless grinding.
8th	**22**	3.6 Grinding machine – Cylindrical grinder, surface grinder, internal grinder, centreless grinder, tool and cutter grinder.
	23	3.7 Selection of grinding wheel 3.8 Thread grinding.
	24	Modern Machining Processes 4.1 Mechanical Process - Ultrasonic machining (USM): Introduction, principle, process, advantages and limitations, applications
9th	**25**	4.2 Electro Chemical Processes - Electro Chemical Machining (ECM) – Fundamental principle, process, applications 4.3 Electrical Discharge Machining (EDM) - Introduction, basic EDM circuit, Principle, metal removing rate, dielectric fluid, applications
	26	4.4 Laser Beam Machining (LBM) – Introduction, machining process and applications
	27	4.5 Plasma Arc Machining (PAM) and welding – Introduction, principle process and applications
10th	**28**	**SESSIONAL II**
	29	**Metallic Coating Processes** 5.1 Metal spraying – Wire process, powder coating process, applications
	30	5.2 Electro plating, anodizing and galvanizing
11th	**31**	5.3 Organic Coatings- oil base paint, rubber base coating
	32	**Metal Finishing Processes**
	33	6.1 Purpose of finishing surfaces. 6.2 Surface roughness-Definition and units
12th	**34**	6.3 Honing Process, its applications 6.4 Description of hones.
	35	6.5 Brief idea of honing machines. 6.6 Lapping process, its applications.
	36	6.7 Description of lapping compounds and tools. 6.8 Brief idea of lapping machines.
13th	**37**	6.9 Polishing
	38	6.10 Buffing
	39	6.11 Burnishing
14th	**40**	**SESSIONAL II**
	41	REVISION OF SYLLABUS
	42	REVISION OF SYLLABUS
15th	**43**	REVISION OF SYLLABUS
	44	REVISION OF SYLLABUS
	45	REVISION OF SYLLABUS