LESSON PLAN

NAME OF FACULTY: SH. HITESH AGGARWAL
DISCIPLINE: MECHANICAL ENGINEERING
SEMESTER: IV
SUBJECT: WORKSHOP TECHNOLOGY-II
LESSON PLAN DURATION: 15 WEEKS

WORK LOAD (LECTURE/PRACTICAL) PER WEEK: THEORY- (4 PERIODS)

WEEK	THEORY	
	LECTURE NO.	TOPIC
1st	1	**1. Cutting Tools and Cutting Materials** 1.1. Cutting Tools - Various types of single point cutting tools and their uses.
	2	Single point cutting tool geometry, tool signature and its effect
	3&4	Heat produced during cutting and its effect, Cutting speed, feed and depth of cut and their effect.
2nd	5	1.2 Cutting Tool Materials - Properties of cutting tool material, Study of various cutting tool materials viz. High-speed steel, tungsten carbide, cobalt steel cemented carbides, stellite, ceramics and diamond.
	6	**2. Lathe** 2.1 Principle of turning
	7&8	2.2 Function of various parts of a lathe
3rd	9	2.3 Classification and specification of various types of lathe
	10	2.4 Work holding devices
	11&12	2.5 Lathe tools and operations :- Plain and step turning, facing, parting off, taper turning, eccentric turning, drilling, reaming, boring, threading and knurling, form turning, spinning.
4th	13	2.6 Cutting parameters – Speed, feed and depth of cut for various materials and for various operations, machining time.
	14	2.7 Speed ratio, preferred numbers of speed selection.
	15&16	2.8 Lathe accessories:- Centers, dogs, different types of chucks, collets, face plate, angle plate, mandrel, steady rest, follower rest cont..
5th	17	2.8 Lathe accessories:- Centers, dogs, different types of chucks, collets, face plate, angle plate, mandrel, steady rest, follower rest,
	18	Taper turning attachment, tool post grinder, milling attachment, Quick change device for tools. Cont..
	19&20	Taper turning attachment, tool post grinder, milling attachment, Quick change device for tools.
	21	2.9 Introduction to capstan and turret lathe
	22	**SESSIONAL TEST-I**

	23&24	**3. Drilling** 3.1 Principle of drilling. 3.2 Classification of drilling machines and their description.
7 th	**25**	3.2 Classification of drilling machines and their description.
	25	3.3 Various operation performed on drilling machine – drilling, spot facing, reaming, boring, counter boring, counter sinking, hole milling, tapping.
	27&28	3.4 Speeds and feeds during drilling, impact of these parameters on drilling, machining time.
8th	**29**	3.5 Types of drills and their features, nomenclature of a drill
	30	3.6 Drill holding devices.
	31$32	**4. Boring** 4.1 Principle of boring 4.2 Classification of boring machines and their brief description.
9 th	**33**	4.2 Classification of boring machines and their brief description.
	34	4.3 Boring tools, boring bars and boring heads.
	35&36	**5. Shaping, Planing and Slotting** 5.1 Working principle of shaper, planer and slotter.
10th	**37**	5.2 Type of shapers 5.3 Type of planers
	38	5.4 Types of tools used and their geometry.
	39&40	5.5 Speeds and feeds in above processes.
1 th 1	**41**	**SESSIONAL TEST-II**
	42	**6. Broaching** 6.1 Introduction 6.2 Types of broaching machines – Single ram and duplex ram horizontal type, vertical type pull up, pull down, push down.
	43&44	6.2 Types of broaching machines – Single ram and duplex ram horizontal type, vertical type pull up, pull down, push down.
12th	**45**	6.3 Elements of broach tool, broach tooth details – nomenclature, types, and tool material.
	46	**7. Jigs and Fixtures** 7.1 Importance and use of jigs and fixture
	47&48	7.2 Principle of location
1 th 3	**49**	7.3 Locating devices
	50	7.4 Clamping devices 7.5 Advantages of jigs and fixtures
	51&52	8. Cutting Fluids and Lubricants (08 hrs) 8.1 Function of cutting fluid 8.2 Types of cutting fluids
14th	**53**	8.2 Types of cutting fluids
	54	8.3 Difference between cutting fluid and lubricant 8.4 Selection of cutting fluids for different materials and operations
	55&56	8.4 Selection of cutting fluids for different materials and operations
	57	8.5 Common methods of lubrication of machine tools.

15th	**58**	VIVA - VOICE
	59&60	**SESSIONAL TEST-III**