

Government Polytechnic for Women, Faridabad

Lesson Plan

Name of Faculty : Mr. Ramkaran Sharma (Theory)

Discipline : Mechanical Engineering

Semester : 4th

Subject : Workshop Technology-II

Lesson Plan Duration : 15 weeks (from January 2019 to April 2019)

Work Load (Lectures) per week (in hours): Lectures-03

WEEK	THEORY	
	Lecture Day	Topic (Including Assignment / Topic)
1 st	1 st	1.Cutting Tools and Cutting Materials • Various types of single point cutting tools and their uses • Single point cutting tool geometry, tool signature and its effect • Heat produced during cutting and its effect
	2 nd	• Cutting speed, feed, depth of cut and their effect • Cutting tool materials • Properties of cutting tool material
	3 rd	Study of various cutting tool materials • High speed steel • Tungsten carbide • Cobalt steel cemented carbides
2 nd	4 th	• Stellite • Ceramics • Diamonds
	5 th	Test of chapter -1
	6 th	2. Lathe • Principle of turning • Function of various parts of lathe • Classification and specification of various types of lathe

3 rd	7 th	Work holding devices
	8 th	Assignment topic: Lathe tools and operations • Plain and step turning • Facing, parting off and taper turning • Eccentric turning, drilling, reaming and boring • Threading, knurling, form turning and spinning.
	9 th	Cutting parameters • Speed, feed and depth of cut for various materials and for various operations
4 th	10 th	• Machine time Speed ratio • Preferred numbers of speed selection
	11 th	Lathe accessories • Centre, dogs and different types of chucks • Collects, faceplate, angle plate and mandrel
	12 th	• Steady rest, follower rest and taper turning attachment • Tool post grinder and milling attachment
5 th	13 th	Quick change device for tools
	14 th	Introduction to capstan and turret lathe
	15 th	Test of chapter-2
6 th	16 th	3. Drilling • Principle of drilling • Classification of drilling machines and their descriptions
	17 th	Various operation performed on drilling machine • Drilling, spot facing and reaming • Boring and counter boaring
	18 th	• Counter sinking, hole milling and tapping
7 th	19 th	• Speeds and feeds during drilling • Impact of these parameters on drilling and machining time
	20 th	Types of drills and their features, nomenclature of drill
	21 st	Drill holding devices

8 th	22 nd	Test of chapter-3
	23 rd	4. Boring • Principle of boring
	24 th	Assignment Topic: Classification of boring machines and brief description • Boring tools • Boaring bars • Boaring heads
9 th	25 th	Test of chapter-4
	26 th	5. Shaping, Planning and Slotting Working principle of • Shaper • planer • slotter
	27 th	Types of • Shapers • Planers
10 th	28 th	Types of tools used and their geometry
	29 th	Speed and feeds in above process
	30 th	Test of chapter-5
11 th	31 st	6. Broaching • Introduction Types of broaching machine • Single ram • Duplex ram horizontal
	32 nd	• Vertical pull up • Pull down • Push down
	33 rd	• Elements of broach tool, • Broach tooth details –nomenclature, Types and material of tools
12 th	34 th	Test of chapter-6
	35 th	7. Jigs and fixtures • Importance and use of jigs and fixtures • Principle of location
	36 th	• Locating devices

13 th	37 th	Clamping devices
	38 th	Advantages of jigs and fixtures
	39 th	Test of chapter-7
14 th	40 th	8. Cutting fluids and lubricants Function of cutting fluid
	41 st	Assignment topic: Types of cutting fluids
	42 nd	Different between cutting fluids and lubricants
15 th	43 rd	Selection of cutting fluids for different materials and operations
	44 th	Common methods of lubrication of machine tools
	45 th	Test of chapter-8