

Lesson Plan

Name of the Faculty: Er. B. L. Rawat Lecturer in Mech. Engg., G. P. Mandkola

Discipline :Mechanical Engg.

Semester :4th

Subject :WT II

Lesson plan duration :16 weeks (from 06 March, 2023 to 23 JUNE, 2023)

Week	Theory	
	Lecture Day	Topic (including assignments /tests)
1 st Week	1 st	Unit 1: Cutting Tools - Various types of single point cutting tools and their uses
	2 nd	Single point cutting tool geometry, tool signature and its effect, Heat produced during cutting and its effect
	3 rd	Cutting speed, feed and depth of cut and their effect
Week 2	1 st	Cutting Tool Materials - Properties of cutting tool material, Study of various cutting tool materials
	2 nd	High-speed steel, tungsten carbide, cobalt steel cemented carbides
	3 rd	StelliteS, ceramics and diamond
Week 3	1 st	Unit 2: LATHE; Principle of turning, Function of various parts of a lathe
	2 nd	Classification and specification of various types of lathe, Work holding devices
	3 rd	Lathe tools and operations :- Plain and step turning, facing, parting off, taper turning, eccentric turning, drilling, reaming, boring, threading and knurling, form turning, spinning.
Week 4	1 st	Cutting parameters – Speed, feed and depth of cut for various materials and for various operations, machining time.
	2 nd	Speed ratio, preferred numbers of speed selection.
	3 rd	Lathe accessories:- Centers, dogs, different types of chucks, collets, face plate, angle plate, mandrel, steady rest, follower rest, taper turning attachment, tool post grinder, milling attachment, Quick change device for tools.
Week 5	1 st	Introduction to capstan and turret lathe
	2 nd	Unit 3: Drilling; Principle of drilling. Classification of drilling machines and their description
	3 rd	Various operation performed on drilling machine – drilling, spot facing, reaming, boring, counter boring, counter sinking, hole milling, tapping
Week 6	1 st	Speeds and feeds during drilling, impact of these parameters on drilling, machining time.
	2 nd	Types of drills and their features, nomenclature of a drill
	3 rd	Drill holding devices.
Week 7	1 st	Unit 4: Boring; Principle of boring
	2 nd	Classification of boring machines and their brief description.
	3 rd	Boring tools, boring bars and boring heads

Week 8	1 st	Unit 5: Shaping, Planing and Slotting; Working principle of shaper,
	2 nd	Working principle of Planer & Slotter
	3 rd	Type of shapers, Type of Planers
Week 9	1 st	Types of tools used and their geometry, Speeds and feeds in above processes
	2 nd	Unit 6: Broaching; Introduction
	3 rd	Types of broaching machines – Single ram and duplex ram horizontal type,
Week 10	1 st	vertical type pull up, pull down, push down
	2 nd	Elements of broach tool, broach tooth details – nomenclature, types, and tool material.
	3 rd	Assignment
Week 11	1 st	Test
	2 nd	Unit 7: Jigs & Fixtures; Importance and use of jigs and fixture
	3 rd	Principle of location
Week 12	1 st	Locating devices
	2 nd	Clamping devices
	3 rd	Advantages of jigs and fixtures
Week 13	1 st	Assignment
	2 nd	Revision
	3 rd	Unit 8: Cutting Fluids & Lubricants; Introduction
Week 14	1 st	Function of cutting fluid
	2 nd	Types of cutting fluids
	3 rd	Difference between cutting fluid and lubricant
Week 15	1 st	Selection of cutting fluids for different materials and operations
	2 nd	Common methods of lubrication of machine tools.
	3 rd	Revision
Week 16	1 st	Revision
	2 nd	Revision
	3 rd	Previous years question papers