



GOVERNMENT POLYTECHNIC, NABARANGPUR

DEPARTMENT OF MECHANICAL ENGINEERING

Discipline: MECHANICAL ENGG	Semester: 4TH	Name of the Teaching Faculty: MANORAMA SARABU
Subject: MANUFACTUR ING TECHNOLOGY	No. of days/per week class allotted: 04	Semester From date: 15.04.2021 To Date: 13.08.2021 No. of Weeks: 15
COURSE OUTCOMES	<ol style="list-style-type: none"> 1. Comprehending required material properties for cutting tools 2. Comprehending machining mechanism principle and factors affecting machining performance 3. Comprehending working principle and components in machining tools including lathe, milling, shaping, planning, slotting machines 4. Comprehending requirement of surface finish and realize principles involved in grinding and super finishing operations 	
Week	Class Day	Theory/Practical Topics
1 ST	1 ST	Tool Materials - Introduction
	2 ND	Composition of various tool materials
	3 RD	Physical properties & uses of such tool materials.
	4 TH	Revision
2 ND	1 ST	Cutting Tools - Introduction
	2 ND	Cutting action of various tools such as Chisel, hacksaw blade, dies and reamer
	3 RD	Contd.
	4 TH	Turning tool geometry and purpose of tool angle
3 RD	1 ST	Machining process parameters (Speed, feed and depth of cut)
	2 ND	Coolants and lubricants in machining and purpose
	3 RD	Lathe Machine – Introduction Construction and working of lathe and CNC lathe
	4 TH	Contd.
4 TH	1 ST	Major components of a lathe and their function Operations carried out in a lathe (Turning, thread cutting, taper turning, internal machining, parting off, facing, knurling)
	2 ND	Safety measures during machining
	3 RD	Capstan lathe Difference with respect to engine lathe
	4 TH	Major components and their function Define multiple tool holders
5 TH	1 ST	Turret Lathe Difference with respect to capstan lathe Major components and their function
	2 ND	Draw the tooling layout for preparation of a hexagonal bolt & bush
	3 RD	Shaper - Introduction Potential application areas of a shaper machine
	4 TH	Major components and their function

6 TH	1 ST	Explain the automatic able feed mechanism
	2 ND	Explain the construction & working of tool head
	3 RD	Explain the quick return mechanism through sketch
	4 TH	State the specification of a shaping machine.
7 TH	1 ST	Planing Machine - Introduction
	2 ND	Application area of a planer and its difference with respect to shaper
	3 RD	Major components and their functions
	4 TH	The table drive mechanism
8 TH	1 ST	Working of tool and tool support
	2 ND	Clamping of work through sketch
	3 RD	Milling Machine - Introduction Types of milling machine and operations performed by them and also same for CNC milling machine
	4 TH	Contd.
9 TH	1 ST	Explain work holding attachment
	2 ND	Construction & working of simple dividing head, universal dividing head
	3 RD	Contd.
	4 TH	Procedure of simple and compound indexing
10 TH	1 ST	Illustration of different indexing methods
	2 ND	Slotter - Introduction , Types
	3 RD	Contd.
	4 TH	Major components and their function
11 TH	1 ST	Construction and working of slotter machine
	2 ND	Contd.
	3 RD	Tools used in slotter
	4 TH	Grinding - Introduction Significance of grinding operations
12 TH	1 ST	Manufacturing of grinding wheels
	2 ND	Criteria for selecting of grinding wheels
	3 RD	Specification of grinding wheels with example
	4 TH	Working of Cylindrical Grinder
13 TH	1 ST	Surface Grinder Centre less Grinder
	2 ND	Internal Machining operations Classification of drilling machines
	3 RD	Working of Bench drilling machine Pillar drilling machine Radial drilling machine
	4 TH	Contd.
14 TH	1 ST	Boring - Basic Principle of Boring Difference between Boring and drilling
	2 ND	Contd. & Broaching
	3 RD	Types of Broaching (pull type, push type) Advantages of Broaching and applications
	4 TH	Surface finish, lapping Definition of Surface finish
15 TH	1 ST	Description of lapping & explain their specific cutting.
	2 ND	Contd.
	3 RD	REVISION
	4 TH	REVISION

SOURCES:

No.	Name of the Book	Author Name
1.	Text Book of Workshop Technology	Hazra Choudhury Vol.-I & II
2.	Text Book of Workshop Technology	W.A.S Chapman Vol.-I & II
3.	Text Book of Manufacturing Process	P.N. Rao

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