GOVERNMENT POLYTECHNIC, KORAPUT

DEPARTMENT OF MECHANICAL ENGINEERING

Discipline: **MECHANICAL ENGG**	Semester: **4TH**	Name of the Teaching Faculty: A. SUDHIR KUMAR
Subject: **MANUFACTURING TECHNOLOGY**	No. of days/per week class allotted: **04**	Semester From date: 20.04.21 To Date: 03.08.21 No. of Weeks: **15**

COURSE OUTCOMES

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 supper finishing operations

Week	Class Day	Theory/Practical Topics
1ST	1ST	**Tool Materials** - Introduction
	2ND	Composition of various tool materials,
	3RD	Physical properties& uses of such tool materials.
	4TH	Revision
2ND	1ST	**Cutting Tools - Introduction**
	2ND	Cutting action of various and tools such as Chisel, hacksaw blade, dies and reamer
	3RD	Contd.
	4TH	Turning tool geometry and purpose of tool angle
3RD	1ST	Machining process parameters (Speed, feed and depth of cut)
	2ND	Coolants and lubricants in machining and purpose
	3RD	**Lathe Machine – Introduction** Construction and working of lathe and CNC lathe
	4TH	Contd.
4TH	1ST	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)
	2ND	Safety measures during machining
	3RD	Capstan lathe Difference with respect to engine lathe
	4TH	Major components and their function Define multiple tool holders
5TH	1ST	Turret Lathe Difference with respect to capstan lathe Major components and their function
	2ND	Draw the tooling layout for preparation of a hexagonal bolt & bush
	3RD	**Shaper - Introduction** Potential application areas of a shaper machine
	4TH	Major components and their function

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

LEARNING RESOURCES:

Sl. 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

Sign. Of Faculty concerned

Sharmila Sahoo
Sign. Of HOD I/C

Principal, GP Koraput