CO PO PSO MAPPING

		COURSE OUTCOME	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Manufacturing Technology	CO-1	To characterize various metal removal tool & the forces acting during machining.	3	3	1	2	3	1	0	1	0	2	2	3	3	0
	CO-2	To analyze tool life & its properties.	3	3	2	2	2	1	0	1	0	1	1	3	3	0
	CO-3	To identify various machining tool including special purpose machine tool.	3	2	1	0	2	0	0	1	0	0	1	2	3	0
	CO-4	To classify types of Grinding, Finishing & High Velocity Forming processes.	3	1	1	0	2	0	1	1	1	0	1	3	3	0

COURSE PLAN

Manufacturing Technology [5ME4-03]

PALAK JINDAL

Vision and Mission of Institute:

Vision: To become a renowned center of outcome based learning, and work towards academic, professional, cultural and social enrichment of the lives of individuals and communities.

Mission:

M1: Focus on evaluation of learning outcomes and motivate students to inculcate research aptitude by project based learning.

M2: Identify, based on informed perception of Indian, regional and global needs, areas of focus and provide platform to gain knowledge and solutions.

M3: Offer opportunities for interaction between academia and industry.

M4: Develop human potential to its fullest extent so that intellectually capable and imaginatively gifted leaders can emerge in a range of professions.

Vision and Mission of Department:

Vision: The Mechanical Engineering Department strives to be recognized globally for excellent technical knowledge and to produce quality human resource, who can manage the advance technologies and contribute to society through entrepreneurship and leadership.

Mission:

M1: To impart highest quality technical knowledge to the learners to make them globally competitive mechanical engineers.

M2: To provide the learners ethical guidelines along with excellent academic environment for a long productive career.

M3: To promote industry-institute linkage.

COURSE OUTCOME

CO1 To characterize various metal removal tool & the forces acting during machining.

CO2 To analyze tool life & its properties.

CO3 To identify various machining tool including special purpose machine tool.

CO4 To classify types of Grinding, Finishing & High Velocity Forming processes.

S#	Lecture#	Topic to be discussed	Objective of Unit	Outcome of Lecture **(After completion of this lecture students will be able to)**	Book referred
1	1	Introduction: Objective, scope and outcome of the course.	To understand the basic concepts in mechanics of metal cutting and forces.	Understand the basic concept of material removal process	T1
2	2,3	Geometry of single point cutting tool and tool angles, tool nomenclature in ASA, ORS		understand the concept of metal cutting	T1
4	4	Concept of orthogonal and oblique cutting.		Understand matel cutting process	T1
5	5	Type of chips, Mechanics of metal cutting;		Understand the types of chip formation	T2
6	6,7,8	interrelationships between cutting force, shear angle, strain and strain rate.		Understand merchan's circle diagram.	T2
7	9,10	Thermal aspects of machining and measurement of chip tool interface temperature.		Identify the thermal aspects of cutting.	T2
8	11	Concept of machinability, machinability index, factors affecting machinability, D	To understand & calculate te tool lfe & tool wear	Understand the basic concept of machinablity	T1
	12	Different mechanism of tool wear		Understand the effect of tool wear on metal cutting	
10	13	Types of tool wear (crater, flank etc)		Understand the effect of tool wear on metal cutting	T2
11	14	Concept of tool		Understand the concept of tool life .	T2
12	15,16,17	Taylor's tool life equation and its numericals		problem solving on tool life	T2
13	18	Introduction to economics of machining.		Identify the difference types of cutting fluids	T1
14	19	Cutting fluids: Types, properties, selection and application methods			T1
15	20	Basic machine tools: Constructional configuration	To understand the concept of types of	Understand the basic operation performimng on lathe machine	T2
16	21,22,23	estimation of machining time on lathe, drilling, shaping, milling, grinding, Gear cutting on milling, Gear hobbling.		Indentify the machining time and power during cutting	T2

17	24,25	Special Purpose Machine Tools: Automatic lathes, capstan and turret lathe machines	lathe, various operations that can be performed in various lathes, various mechanisms adopted.		T2
18	26,27	operational planning and turret tool layout, sequence of operations.		Understand the concept of operation can be perform on automatic lathe machine	T1
19	28	Introduction to Grinding and different methods of grinding	Acquaint with the fundamentals of finishing process, super finishing process and grinding process.	Identify the basic concept of grinding process	T1
20	29,30	Abrasives; natural and synthetic, manufacturing and selection of grinding wheels		Understand the concept of abrasives in grinding wheel	T1
21	31	Wheel specifications. Honing, lapping, superfinishing		Understand the polishing and buffing process	T1
22	32,33	High velocity forming methods ;Hydraulic forming, Explosive forming,			T1
23	34,35	Electro-hydraulic forming,			T2
24	36,37	Magnetic pulse forming			T2

T1: P N Rao, Manufacturing Technology Volume 2

T2: P. C. Sharma Production Technology