

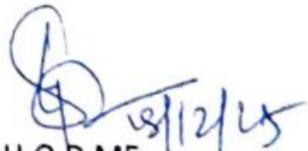
SYNERGY SCHOOL OF ENGINEERING,DKL  
DEPARTMENT OF MECHANICAL ENGINEERING  
LESSON PLAN

Discipline: ME	Semester: 3 <sup>rd</sup>	Name of the Teaching faculty: G C SWAIN	Date of Delivery
Subject: Tool Engineering (Th 5b) MEPE204	No of Days/Week class allotted:3	Semester from Date:22.12.2025 To Date:18.04.2026 No of weeks: 15	
Week	Class Day	Topics	
1st	1st	Metal Cutting: Mechanics of Metal cutting	
	2nd	requirements of tools & cutting forces	
	3rd	Types of chips	
2nd	1st	chip thickness ratio; shear angle	
	2nd	Numerical problem solve	
	3rd	Orthogonal,oblique & form cutting	
3rd	1st	Cutting fluids	
	2nd	Cutting fluids	
	3rd	Types of wear	
4th	1st	Tool life	
	2nd	Machinability: definition; factors affecting machinability; machinability index.	
	3rd	Machinability: definition; factors affecting machinability machinability index.	
5th	1st	Tool materials: Types; characteristics; applications	
	2nd	Tool materials: Types; characteristics; applications	
	3rd	Heat treatment of tool steels	
6th	1st	Heat treatment of tool steels	
	2nd	Specification of carbide tips;	
	3rd	Types of ceramic coatings.	
7th	1st	Cutting Tool Geometry: Single point cutting tool; drills; reamers; milling; cutters.	
	2nd	Cutting Tool Geometry: Single point cutting tool; drills; reamers; milling; cutters.	
	3rd	Types of dies and construction: Simple Die; Compound Die	
8th	1st	Progressive Die; Combination Die.	



	2nd	Punch & Die mountings: pilots; strippers	
	3rd	misfeed detectors & quiz test	
9th	1st	Pressure Pads	
	2nd	Knock out & Important Questions	
	3rd	stock guide; Feed-Stop	
10th	1st	guide bush; guide pins	
	2nd	Die Design Fundamentals	
	3rd	Die Operations; blanking; piercing	
11th	1st	shearing; cropping; notching	
	2nd	lancing; coining; embossing; stamping	
	3rd	curling; drawing; bending; forming; Die set	
12th	1st	Die shoe; Die area	
	2nd	Calculation of clearances on die and punch for blanking and piercing dies	
	3rd	Strip layout; Calculation of material utilization factor.	
13th	1st	Forming Dies: Bending methods; Bending Dies; bend allowance; spring back; blanking; bending pressure; pressure pads; development of blank length.	
	2nd	Drawing: operations; Metal flow during drawing; Calculation of Drawing blank size	
	3rd	variables affecting metal flow during drawing; single action and double action dies; combination dies.	
14th	1st	Fundamentals of other Tools: Constructional features of - Pressure Die casting dies; metal extrusion dies	
	2nd	injection molding dies; forging dies; plastic extrusion dies	
	3rd	Important Question Discussion	
15th	1st	Important Question Discussion	
	2nd	Important Question Discussion	
	3rd	Important Question Discussion	

  
 Concern Faculty  
 18/12/25

  
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