Name of the Institute:	R.K. INSTITUTE OF ENGG. & TECH.
Department:	Mechanical Engineering
Semester:	4th SEM.
Subject Name with code:	TOOL ENGINEERING TH:5(b)
Total No. of Class (Required):	45 FROM-22/12/2025 TO-18/04/2026
Faculty Name:	Mr. KEDARNATH SAHOO

Class No.	Brief Description of the Topic/Chapter to be taught	Remarks
1	Metal Cutting: Mechanics of Metal cutting; requirements of tools;	
2	cutting forces; types of chips;	
3	chip thickness ratio; shear angle ;	
4	simple numerical only;	
5	Types of metal cutting process; or- thogonal;	
6	oblique and form cutting;	
7	Cutting fluids: types;	
8	characteristics and applications.	
9	Tool wear: Types of wear;	
10	Tool life; Tool life equations.	
11	Machinability: definition;	
12	factors affecting machinability;	
13	machinability index.	
14	Tool materials: Types; characteristics;	
15	applications; Heat treatment of tool steels;	
16	Specification of carbide tips;	
17	Types of ceramic coatings.	
18	Cutting Tool Geometry: Single point cutting tool;	
19	drills; reamers;	
20	milling; cutters.	
21	Types of dies and construction: Simple Die;	
22	Compound Die;	
23	Progressive Die; Combination Die.	
24	Punch & Die mountings: pilots;	
25	strippers; misfeed detectors;	
26	Pressure Pads; Knock outs;	
27	stock guide; Feed-Stop;	

28	guide bush; guide pins.	
29	Die Design Fundamentals: Die Operations;	
30	blanking; piercing;	
31	shearing; cropping;	
32	notchng; lancing;	
33	coining; embossing; stamping; curling;	
34	drawing; bending; forming; Die set; Die shoe;	
35	Die area;	
36	Calculation of clearances on die and punch for blanking and piercing dies;	
37	Strip layout; Calculation of material utilization factor.	
38	Forming Dies: Bending methods; Bending Dies; bend allowance; spring back; spanking;	
39	bending pressure; pressure pads; development of blank length.	
40	Drawing: operations; Metal flow during drawing; Calculation of Drawing blank size; variables affecting metal flow during drawing;	
41	single action and double action dies; combination dies.	
42	Fundamentals of other Tools: Constructional features of - Pressure Die casting dies;	
43	metal extrusion dies; injection molding dies;	
44	forging dies; plastic extrusion dies.	
45	Revision	

HOD
MECHANICAL

SUBJECT
EXPERT