

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

Discipline: Mechanical	Semester: 3rd	Name of the Teaching faculty: G C SWAIN	
Subject: MP (Th4)	No of Days/Week class allotted:3	Semester from Date:14.07.2025 To Date: 15.11.2025	No of weeks: 15
Week	Class Day	Topics	
1st	1st	Cutting Fluids & Lubricants: Introduction; Types of cutting fluids	
	2nd	Fluids and coolants required in turning, drilling, shaping, sawing & broaching	
	3rd	Selection of cutting fluids, methods of application of cutting fluid; Classification of lubricants(solid, liquid, gaseous), Properties and applications of lubricants	
2nd	1st	Lathe Operations: Types of lathes – light duty, Medium duty	
	2nd	Lathe Operations: Types of lathes –and heavy duty geared lathe	
	3rd	CNC lathe; Specifications; Basic parts and their functions	
3rd	1st	Operations and tools – Turning, parting off, Knurling, of lathe	
	2nd	facing, Boring, drilling, threading, step turning, taper turning	
	3rd	Nomenclature of single point cutting tool	
4th	1st	Nomenclature of single point cutting tool	
	2nd	Broaching Machines: Introduction to broaching	
	3rd	Types of broaching machines – Horizontal type (Single ram & duplex ram), Vertical type. Types of operations;	
5th	1st	Pull up, pull down, and push down; Elements of broach tool; broach teeth details; Nomenclature; Tool materials	
	2nd	Drilling: Classification	
	3rd	Basic parts and their functions; Radial drilling machine;	
6th	1st	Specifications of drilling machine; Types of drills and reamers.	
	2nd	Monthly Test	
	3rd	Important PYQ Discussion	
7th	1st	Welding: Classification; Gas welding techniques	
	2nd	Types of welding flames	
	3rd	Arc Welding – Principle, Equipment	
8th	1st	Applications; Shielded metal arc welding; Submerged arc welding	
	2nd	TIG / MIG welding; Resistance welding - Spot welding, Seam welding, Projection welding; Welding defects; Brazing and soldering: Types, Principles, Applications.	

Principal
 Synergy School of Engineering
 Chennai

11/11/25

	3rd	Milling: Introduction; Types of milling machines: plain, Universal, vertical constructional details – specifications
9th	1st	Milling operations: simple, compound and differential indexing
	2nd	Milling cutters – types
	3rd	Nomenclature of teeth; Teeth materials; Tool signature of milling cutter; Tool & work holding devices.
10th	1st	Gear Making: Manufacture of gears – by Casting, Moulding, Stamping, Coining Extruding, Rolling, Machining
	2nd	Gear generating methods: Gear Shaping with pinion cutter & rack
	3rd	cutter Gear hobbing; Description of gear hob; Operation of gear hobbing machine;
11th	1st	Gear finishing processes; Gear materials and specification; Heat treatment processes applied to gears.
	2nd	Press working: Types of presses and Specifications.
	3rd	Press working operations - Cutting, bending, Drawing, punching, blanking, notching, lancing;
12th	1st	Die set components- punch and die shoe, guide pin, bolster plate, stripper
	2nd	stock guide, feed stock, pilot; Punch and die clearances for blanking and piercing, effect of clearance.
	3rd	Grinding and finishing processes: Principles of metal removal by Grinding; Abrasives – Natural & Artificial
13th	1st	Bonds and binding processes: Vitrified, silicate, shellac, rubber, bakelite
	2nd	Factors affecting the selection of grind wheels: size and shape of wheel; kind of abrasive, grain size, grade and strength of bond
	3rd	structure of grain, spacing, kinds of bind material; Standard marking systems: Meaning of letters & numbers sequence of marking, Grades of letters
14th	1st	Grinding machines classification-: Cylindrical, Surface, Tool & Cutter grinding machines
	2nd	Construction details; Principle of centreless grinding; Advantages & limitations of centreless grinding
	3rd	Finishing by grinding: Honing, Lapping, Super finishing
15th	1st	Electroplating: Basic principles, Plating metals, applications
	2nd	; Hot dipping: Galvanizing, TiN coating, Parkerizing, Anodizing; Metal spraying: wire process, powder process and applications
	3rd	Organic coatings: Oil base Paint, Lacquer base, Enamels, Bituminous paints, rubber base coating; Finishing specifications

Signature of Faculty

G. Ch. Sauri
G. Ch. Sauri

Dr. J. K. Sauri
PRINCIPAL

Synergy School of Engineering
Dhenkanal

H.O.D, ME

G. Ch. Sauri

HOD
MECHANICAL ENGG. DEPT.
SSE, Dhenkanal

