NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE& affiliated to SCTE&VT, Odisha)

LESSON PLAN

SUBJECT: MANUFACTURING PROCESSES(TH-1)

Name Of The Faculty :- Er. Subhranshu sekhar Sethi
Branch :- MECHANICAL ENGINEERING **Semester :-** 3rd
Session :- 2025-26 **Examination :-** 2025 (W)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	Cutting fluids and lubricants,lathe operations	10	11
2	Broaching machines,drilling	9	8
3	Welding , Milling	9	11
4	Gear making ,Press working	9	10
5	Grinding and finishing process	8	20
	Total Period	45	60

10.07.2025
Sign of Faculty

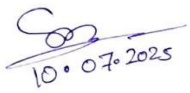
10/07/2025
Sign of H.O.D.

Name of the programme: Diploma in MECHANICAL ENGINEERING	Semester: 3rd	**Name of the Teaching Faculty:** Er. Subhranshu sekhar Sethi	
		Academic Year : 2025-26 **Examination :** 2025 (W)	
COURSE CODE: (MEPC201)	Course Year: Second Year	**No. of Classes Alloted Per Week :**	4
		Planned Classes Required to Complete the Course	60

Week	Class Day	Topics to be Covered
1st	1st	Introduction; Types of cutting fluids, Fluids and coolants
	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).
	4th	Classification of lubricants(solid, liquid, gaseous).
2nd	1st	Properties and applications of lubricants.
	2nd	Types of lathes, light duty, medium duty and heavy duty geared lathe.
	3rd	CNC lathe; Specifications; Basic parts and their functions.
	4th	Basic parts and their functions.
3rd	1st	Turning,parting off, Knurling, facing,Boring, drilling.
	2nd	Threading, step turning,step turning, taper turning,
	3rd	Nomenclature of single point cutting tool of lathe.
	4th	**UNIT-2 Broaching Machine:** Introduction to broaching.
4th	1st	Types of broaching machines .
	2nd	Horizontal type (Single ram & duplex ram).Vertical type, pull up, pull down, and push down.
	3rd	Elements of broach tool; broach teeth details.
	4th	Nomenclature; Tool materials.
5th	1st	**Drilling:**Classification; Basic parts and their functions.Radial drilling machine.
	2nd	Types of operations; Specifications of drilling machine.
	3rd	Types of drills and reamers,Types of reamers.
	4th	**UNIT-3 Welding:**Classification; Gas welding techniques.
6th	1st	Types of welding flames.
	2nd	Arc Welding :Principle, Equipment.
	3rd	Applications; Shielded metal arc welding.
	4th	Submerged arc welding;TIG / MIG welding.

Week	Class Day	Topics to be Covered
7th	1st	Resistance welding - Spot welding, Seam welding,Projection welding Welding .
	2nd	Welding defects; Brazing and soldering.Brazing and soldering: Types, Principles, Applications.
	3rd	Milling: Introduction; Types of milling machines: plain, Universal, vertical.
	4th	**Constructional details** – specifications; Milling operations: simple, compound and differential indexing.
8th	1st	Milling cutters – types; Nomenclature of teeth; Teeth materials.
	2nd	Tool signature of milling cutter; Tool & work holding devices.
	3rd	**UNIT-4 Gear Making:**Manufacture of gears – by Casting, Moulding, Stamping, Coining Extruding.
	4th	Rolling, Machining; Gear generating methods.
9th	1st	Gear Shaping with pinion cutter & rack cutter; Gear hobbing.
	2nd	Description of gear hob; Operation of gear hobbing machine.
	3rd	Gear finishing processes; Gear materials and specification.
	4th	Heat treatment processes applied to gears. Press working: Types of presses and Specifications.
10th	1st	Press working operations - Cutting, bending.
	2nd	Drawing, punching, blanking, notching, lancing.
	3rd	Die set components- punch and die shoe, guide pin, bolster plate, stripper, stock guide, feed stock, pilot.
	4th	Punch and die clearances for blanking and piercing, effect of clearance.
11th	1st	**UNIT-5 Grinding and finishing processes:**Principles of metal removal by Grinding.
	2nd	Abrasives – Natural & Artificial; Bonds and binding processes.
	3rd	Vitrified, silicate, shellac, rubber, Bakelite; Factors affecting the selection of grind wheels.
	4th	Size and shape of wheel, kind of abrasive, grain size, grade and strength of bond.
12th	1st	Structure of grain, spacing, kinds of bind material; Standard marking systems
	2nd	Meaning of letters & numbers sequence of marking, Grades of letters; Grinding machines classification-: Cylindrical, Surface.
	3rd	Tool & Cutter grinding machines; Construction details; Principle of centerless grinding.
	4th	Advantages & limitations of centerless grinding; Finishing by grinding: Honing, Lapping, Super finishing.
13th	1st	Finishing by grinding: Honing, Lapping, Super finishing.
	2nd	Finishing by grinding: Lapping, Super finishing.
	3rd	Electroplating: Basic principles.
	4th	Plating metals, applications.

Week	Class Day	Topics to be Covered
14th	1st	Hot dipping: Galvanizing.
	2nd	Tin coating, Parkerizing, Anodizing.
	3rd	Metal spraying: wire process.
	4th	Powder process and applications; Organic coatings.
15th	1st	Oil base Paint, Lacquer base, Enamels, Bituminous paints.
	2nd	Rubber base coating; Finishing specifications.
	3rd	**REVISION**
	4th	**REVISION**



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