

ORISSA SCHOOL OF MINING ENGINEERING, KEONJHAR

DEPARTMENT OF AUTOMOBILE ENGINEERING



LESSON PLAN

SUBJECT: MANUFACTURING ENGINEERING

FACULTY: SONALI ROUT

ACCADEMIC SESSION: 2026-27

SEMESTER: 3RD

Sd/-
H O D (Automobile Engg.)

Discipline:- Automobile Engineering	Semester :- 3rd	Name of the teaching faculty :- SONALI ROUT
Subject Name :- MANUFACTURING ENGINEERING(TH1)	No. Of Days/Week Class Allotted :- 03Periods/Week (Friday– 2 period, Saturday–2 Period)	Semester from Date - 01/07/2026 To Date - 05/11/2026 No. of Weeks: 17
WEEK	CLASS DAY	THEORY TOPICS
1st	17.07.2026	1.1 Cutting Tools: Cutting action of various hand tools such as Chisel, hack saw blade, dies and reamer,
	17.07.2026	1.2 Turning tool geometry and purpose of tool angle,
2nd	18.07.2026	1.3 Machining process parameters (Speed, feed and depth of cut)
	18.07.2026	1.4 Coolants and lubricants in machining and purpose
	24.07.2026	1.5 Lathe Operations: Types of lathes – light duty, medium duty and heavy duty geared lathe, CNC lathe; Specifications; Basic parts and their functions
3rd	24.07.2026	1.6 Operations and tools – Turning, parting off, Knurling, facing, Boring, drilling, threading, step turning, taper turning
	31.07.2026	2.1 Casting Define Casting and Classify the various Casting processes. Explain the procedure of Sand mould casting.
	31.07.2026	2.2 Explain different types of molding sands with their composition and properties.
4th	01.08.2026	2.3 Classify different pattern and state various pattern allowances. Classify core. Describe construction and working of cupola and crucible furnace. Explain die casting method
	01.08.2026	2.4 Explain centrifugal casting such as true centrifugal casting, centrifuging with advantages, limitation and area of application.
	07.08.2026	2.5 Explain various casting defects with their causes and remedies.
5th	07.08.2026	2.6 Drilling: Classification; Basic parts and their functions; Radial drilling machine; Types of operations
	14.08.2026	2.7 Specifications of drilling machine; Types of drills and reamers.
	14.08.2026	3.1 Welding: Classification; Gas welding techniques; Types of welding flames;

	21.08.2026	3.2 Arc Welding – Principle, Equipment, Applications; Shielded metal arc welding;
6th	21.08.2026	3.3 Submerged arc welding; TIG / MIG welding;
	28.08.2026	3.4 Resistance welding -Spot welding, Seam welding, Projection welding; Welding defects; Brazing and soldering: Types, Principles, Applications.
7th	28.08.2026	3.5 Milling: Introduction; Types of milling machines: plain, Universal, vertical; constructional details – specifications
	29.08.2026	3.6 Milling operations: simple, compound and differential indexing
	29.08.2026	3.7 Milling cutters – types; Nomenclature of teeth; Teeth materials
8th	05.09.2026	3.8 Tool signature of milling cutter; Tool and work holding device
	05.09.2026	4.1 Gear Making: Manufacture of gears – by Casting, Moulding, Stamping, Coining
	11.09.2026	4.2 Gear Making:- Extruding, Rolling, Machining;
9th	11.09.2026	4.3 Gear generating methods:
10th	18.09.2026	4.4 Gear Shaping with pinion cutter and rack cutter
	18.09.2026	4.5 Gear hobbing; Description of gear hob
	19.09.2026	4.6 Operation of gear hobbing machine; Gear finishing processes
11th	19.09.2026	4.7 Gear materials and specification; Heat treatment processes applied to gears.
	25.09.2026	4.8 Press working: Types of presses and Specifications
	25.09.2026	4.9 Press working operations - Cutting, bending, drawing, punching,
12th	03.10.2026	4.10 Press working operations- blanking, notching, lancing
	03.10.2026	4.11 Die set components- punch and die shoe, guide pin, bolster plate, stripper, stock guide, feedstock, pilot
	09.10.2026	4.12 punch and die clearances for blanking and piercing.
13th	09.10.2026	5.1 Grinding and finishing processes: Significance of grinding operations.
	16.10.2026	5.2 Manufacturing of grinding wheels,
	23.10.2026	5.3 Specification of grinding wheels with example.

14th	23.10.2026	5.4 Criteria for selecting of grinding wheels.
	30.10.2026	5.5 Working of Cylindrical Grinder, Surface Grinder, Centre less Grinder.
	30.10.2026	5.6 Definition of Surface finish, Define super finishing. Description of lapping & explain their specific cutting.
15th	31.10.2026	REVISION
	31.10.2026	MOCK TEST