

Government Polytechnic Gariyaband Dist- Gariyaband

Department of Mechanical Engineering

LESSON PLAN

Session :- 2024-25 (Jan - June -25)

Name of Faculty :-

LALIT KUMAR SAHU

Course :- Diploma

Branch/Semester :-

Mechanical 6TH Sem

Total Class Per Week :- 05

Subject Name & Code :- Advanced Manufacturing Processes 2037682(037)

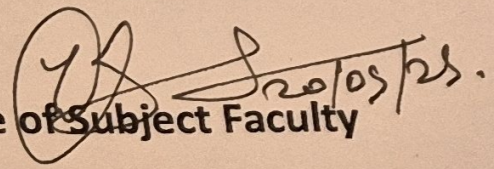
Unit No.	No Of Lecture Required	Topic to be covered	Lecture no.	Actual no. of Lecture taken	Planned Date	Execution Date	Delivery Method	Remark
Unit-1.0 Non- Conventional Machining Processes	(Approx. Hrs: L+P+T=16)	1.1 Need of advance manufacturing, manufacturing trends and challenges, manufacturing aspects.	01	01	07/01/25.	07/01/25	Marker Board.	
		1.2 Types of non conventional machining processes and energy source utilized.	02	02	09/01/25	09/01/25	white Board/Projector	
		1.3 Working principle, setup, Process parameter Advantages, limitation and application and safe practices of- Electrical discharge machining (EDM), Wire Electrical discharge machining (WEDM), Electrochemical Machining (ECM), Plasma arc machining (PAM), Abrasive jet machining (AJM), Ultrasonic Machining (USM), Electron Beam Machining (EBM), Laser beam machining (Cutting)	03-12	03-14	10/01/25 to 20/01/25.	10, 14, 17 21, 23, 24 28, 30, 08	Projector white Board	
		Tutorial Class/RemidialClass/Doubt Class						
		Assignment	01		Unit 2 (1)		Notes.	
Unit-2.0	(Approx. Hrs: P+L+T = 13)	2.1 Metal casting basics, Gating and riser design,	13-14	15-16	07-11 Feb-25.	07-11 Feb-25.	Projector	
		2.2 Working principle, set up, process parameters, Advantages, limitations and applications of Evaporative pattern casing	17-27	17-27	13, 14, 18 20, 21, 22 27, 28, 9 12, 19 Feb 25.	Same, as.		

Advanced Casting Processes		process (EPC), Centrifugal and pressure die casting, Slush casting, Hybrid EPC process, Vacuum EPC, Shell Molding Process.							
Unit-3.0 Advanced Welding and Forming Processes	(Approx. Hrs: P+L+T = 16)	3.1 Working principle, setup, Process parameter Advantages, limitation and application- Orbital TIG welding, Electron beam welding (EBW), Laser beam welding (LBW), ultrasonic welding. Industrial adhesive and Adhesive bonding	28-33	28-32	4,6,7 11,13,18 March 2023	4,6,7 11,13 March 2023		Projector	Unit-2 Notes
		3.2 Advanced Metal forming-High energy rate forming, Electro-magnetic forming, explosive forming, Electro-hydraulic forming, Stretch forming, Contour roll forming.	34-39	33-38	20,21,27 28,19,26 March 25	20,21,27 19,26 March 25		Projector white Board	Unit-3 Notes
Unit 4.0 Gear Manufacturing	(Approx. Hrs: P+L+T = 14)	4.1 Types of gear and Gear manufacturing methods.	40-42	39-41	27,28,1,8 April 25	27,28,01 April-25		Projector	
		4.2 Gear Hobbing- Types and working principle of gear hobbing, Advantages, limitations and application.	41-45	41-45	3,4,8,9 2,11,9 April-25	3,4,8,2,9 April 25		Projector	
		4.3 Gear Shaping-Gear Shaping by pinion cutter, Gear Shaping by rack cutter, Advantages, limitation and application of both the methods and comparison of gear hobbing and gear shaping.	46-50	46-50	11,16,17 22,23 April 25	11,16,17 22,23 April-25		Projector	
		4.4 Gear Finishing methods-Need of gear finishing and different methods of gear finishing like: a) Gear shaving b) Gear grinding c) Gear burnishing d) Gear lapping e) Gear honing f) Gear tooth rounding	51-52	51-52	24-25 April 25	24-25 April 25		Projector	

Unit-5.0 Recent trends in CAM	(Approx. Hrs: P+L+T = 21)	Tutorial Class/RemidialClass/Doubt Class						
		Assignment						
		5.1 Additive manufacturing: 3D printing, Rapid prototyping.	S3	S3	Unit (4) 1 May 25		01 May 25	Notes
		5.2 Construction and working of 3D printer.						
		5.3 Type and properties of material for 3D printer and Rapid prototyping machine.	S4	S4	06 May 25		06 May 25	Notes
		5.4 File format: STL (Stereo Lithography).						
		5.5 3D printer software: part import, orientation, processing and printing.	S5	S5	07/0 May 25		07/ May 25	Notes
		5.6 Computer Integrated Manufacturing (CIM): concept, definition, areas covered and benefits.						
		5.7 Automation-Define, need of automation, high and low cost automation, examples of automations.	S6	S6	8 May 25		8 May 25	Notes
		5.8 Types of Automation -Fixed (Hard) automation, programmable automations and Flexible automations (Soft).	S7	S7	9 May 25		9 May 25	Notes
		5.9 Group Technology-concept, basis for developing part families, part classification and coding with example, concept of cellular manufacturing. Advantages and limitations.	S8 - 60	S8	13 May 25		13 May 25	Notes
		Tutorial Class/RemidialClass/Doubt Class						
		Assignment			Unit (5)			Notes

Total Number Of Lecture Planned :- 60

Total Number Of Lecture Executed :- 58

Signature of Subject Faculty


Date.....

H.O.D (Mechanical Engg.)

Date.....