

Government Polytechnic Gariyaband Dist- Gariyaband

Department of Mechanical Engineering

LESSON PLAN

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

Name of Faculty :- LALIT KUMAR SAHU
Branch/Semester :- Mechanical (4th Sem)

Course :- Diploma
Total Class Per Week :- 05

Subject Name & Code :- Manufacturing Process 2037472 (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 Introduction to Manufacturing Processes	(Approx. Hrs: L+P+T=14)	1.1 Classification of basic manufacturing process based on chip-less and chip-removal processes, Primary and Secondary manufacturing processes, Various generating & forming processes,	01-06	01-06	3,4,5,6 8,10 Feb-25	3,4,5,6 8,10 Feb-25	White Board Projector	
		1.2 Factors which influence selection of manufacturing process for a particular application.	07-08	07-08	11-12 Feb-25	11-12 Feb-25	White Board Projector	
		1.3 Recall mechanical properties of metals.	09	09	13 Feb-25	13 Feb-25	White Board	
		Tutorial Class/Remedial Class/Doubt Class	10	10	13 Feb-25	13 Feb-25	White Board	
		Assignment		Unit ①			Notes	
		2.1 Definition and Need	11	11	15-Feb-25	15-Feb-25	White Board	
Unit-2.0 Metal Casting	(Approx. Hrs: P+L+T = 18)	2.2 Pattern: types, materials, pattern allowances, color code, applications	12-13	12-13	17-18 Feb-25	17-18 Feb 25	—	
		2.3 Cores: Need, types, materials	14	14	19 Feb-25	19-Feb-25	—	
		2.4 Moulds: Molding sand: Types, properties, binders, additives, mixing, Molding equipments & tools	14-15	14-15	20-22 Feb-25	20-22 Feb-25	—	

		Type of moulds, mould making, applications						
		2.5 Melting of metal: Pit furnace, Cupola, Induction furnace	16-18	16-18	24 Feb 8 3.6 March	24 Feb 8 3.6 March	White Board Projector	
		2.6 Metal pouring: Gates and Risers.	19-20	19-20	5-6 March	5-6 March	Projector	
		2.7 Casting Processes: Dry sand mould casting, Shell mould casting, Investment casting, Die casting, Centrifugal casting.	21-26	21-26	7,10,11 12,13,14 March	7-10-11-12 -13-14/ March	Projector	
		2.8 Casting defects: Blow, scar, blister, gas holes, pin holes, porosity, drop, inclusion, dross, dirt, wash, buckle, scab, rat tail, penetration, swell, misrun, cold shut, hot tear, shrinkage cavity, mould shift, core shift and	27-28	27-28	17-18 March	17-18 March	Projector	
		2.9 Inspection of castings: Visual inspection, pressure test, magnetic particle inspection, dye penetration inspection, Radiographic inspection, ultrasonic inspection.	29-30	29-30	19-03 March	19-03-25 03-04-25	Projector White Board	
		2.10 Safety precautions in metal casting	31	31	05-04-25 April	05/March/25	White Board	
		Tutorial Class/Remedial Class/Doubt Class	32-33	32-33	7,10/ March	7/10/ April		
		Assignment		Unit 2			Notes	
Unit-3.0 Metal Forming and Press working	(Approx. Hrs: P+L+T = 16)	3.1 Cold and Hot working of metals, effect on metal properties, advantages & limitations.	34-43	34-43	(12,13,17,21) (22,23,24,26) April	(12,16,17,21,22, 23,24,26) April	Projector	
		3.2 Forming processes, types, working principle, tools and equipment, applications of: Rolling, Forging, Drawing, Deep drawing, Extrusion.	44-50	44-50	(11,13) March (5,6,7,8,10) (14,15) May	(01,03) May	-	
		3.3 Safety precautions.	51		2			
		3.4 Press working: Emphasis that press working is not forming process, Punching, Blanking, Notching, Lancing, Slitting, Nibbling, Trimming	51-55	51-55	2,4,6/ 3,5/June	24,6/ 3,5/June	24,6/ 3,5/June	Projector
		Tutorial Class/Remedial Class/Doubt Class						
		Assignment		Unit 3				Notes
		4.1 Classification, recall gas and arc welding processes.	56	56	19/June/25	19-06-25	-	

Unit 4.0 Metal Joining	(Approx. Hrs: P+L+T = 16)	4.2 Working principle, equipment, sketch, process parameters, applications of: (i) MIG, TIG, Flux coated arc and submerged arc (ii) Resistance welding -Butt, Seam, Spot, Projection and Percussion. (iii) Thermit welding.	57	57	21-06-28	21-06-28	Prinjekar
		4.3 Effects of welding heat	58				
		4.4 Weld defects and their causes.	59				
		4.5 Safety precautions in welding.	60				
		Tutorial Class/RemidialClass/Doubt Class	61-62				
		Assignment			Unit 4		
Unit-5.0 Plastic Molding and Powder Metallurgy	(Approx. Hrs: P+L+T = 16)	5.1 Plastic Molding: Concept, working principle, equipment and applications of Compression molding, Blow molding, Injection molding and Extrusion.	63-70				
		5.2 Safety precautions.	71				
		5.3 Powder Metallurgy: Introduction, advantages and disadvantages, Powder metallurgy processes: Powder making, blending, compacting, sintering, infiltration and impregnation, Applications	72-78				
		5.4 Safety Precautions	79				
		Tutorial Class/RemidialClass/Doubt Class	80				
		Assignment			Unit 5		

Total Number Of Lecture Planed :- 80

Total Number Of Lecture Executed :- 57

Signature of Subject Faculty
Date 27/06/28

H.O.D (Mechanical Engg.)

Date.....