

GOVT. POLYTECHNIC MAYURBHANJ, TIKARPADA

LESSON PLAN OF HEAT TREATMENT TECHNOLOGY (HTT)

ACADEMIC YEAR (2025-26) WINTER

Program : METALLURGICAL ENGG.		Semester: 5th Sem		Name of the Teaching Faculty : Sushree Subhashree Das	
COURSE: HTT COURSE CODE: TH3		No. of Days / per week class allotted : 04		Semester From date : 14.07.2025 To Date : 15.11.2025	
MONTH	Week	Day	Unit	Topics	
JULY	3rd	1st	UNIT-1	Define phase and phase transformation	
		2nd	UNIT-2	Explain solid state diffusion	
		4th		Explain Fick's law	
		5th		Formation of Austenite	
	4th	1st	UNIT-2	Explain the mechanism of formation of austenite	
		2nd		Discuss austenitic grain size	
		4th		Explain grain size importance	
		5th		Explain grain size measurement and control	
	5th	5th	UNIT-3	1st	Methods of determination of austenitic grain size
				2nd	Discuss the method of control austenitic grain size
				4th	1st Monthly Test
	AUGUST	1st	5th	UNIT-3	Discuss decomposition of austenite and pearlite transformation
2nd		1st	Pearlite transformation		
		2nd	Explain Bainite transformation		
		4th	Explain martensite transformation		
		5th	Explain TTT diagram		
3rd		1st	Explain CCT diagram		
		2nd	Explain annealing process		
		4th	Explain types of annealing		
		5th	Independence Day/ Janmastami (HOLIDAY)		
4th		1st	UNIT-4		Explain objective of annealing
		2nd			Explain normalizing process
		4th			Explain hardening process
	5th	Explain quenching mechanism			
5th	1st	UNIT-4	2nd Monthly Test		
	2nd		2nd Monthly Test		
	4th		NUAKHAI (HOLIDAY)		
	5th		UNIT-5	Explain sub zero treatment process	
1st	Explain about different quenchants				
1ST	2nd	UNIT-6	Explain tempering process		
	4th		Explain thermo mechanical treatment		
	5th		Birthday of Prophet Mohammed (HOLIDAY)		
	2nd		1st	Explain different tempering process (Aus tempering and martempering)	
2nd		Explain hardenability			

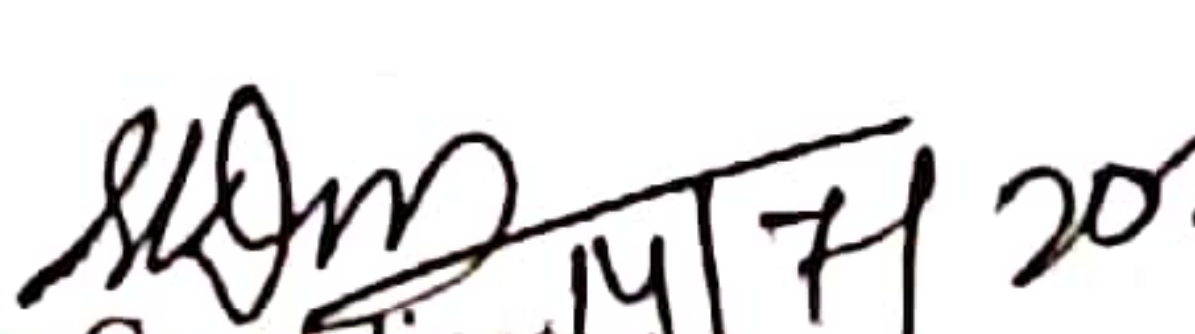
SEPTEMBER		4th	UNIT-7	Explain Grossman's method		
		5th		Explain Jominey end quench method		
	3rd	1st		Discuss the method of estimation of hardenability from chemical composition and fracture test		
		2nd		Discuss between Aus tempering and martempering		
		4th		Discuss the factors affecting hardenability		
		5th		Discuss the factors affecting hardenability; effect of austenitic grain size, carbon content and alloying elements		
		1st		Discussion from Unit 5-7		
	4TH	2nd		Previous year Question discussion		
		4th		INTERNAL ASSESMENT		
		5th		INTERNAL ASSESMENT		
	5th	1st		MAHA SAPTAMI (HOLIDAY)		
		2nd		MAHA NAVMI (HOLIDAY)		
	OCTOBER	1st		4th	UNIT-8	VIJAYA DASHAMI/ GANDHI JAYANTI (HOLIDAY)
5th			Discuss high frequency induction hardening – flame hardening			
2nd		1st	Discuss surface hardening methods			
		2nd	RASA PURNIMA (HOLIDAY)			
		4th	Laser hardening method			
		5th	Discuss high frequency induction hardening – electron beam			
		1st	Discuss the methods of case depth measurement of steel			
3rd		2nd	UNIT-9	Explain different carburizing processes of steel: pack carburizing, liquid carburizing		
		4th		Explain different carburizing processes of steel: gas carburizing, vacuum carburizing		
		5th		Discuss the post carburizing heat treatment		
		1st		Explain process of nitriding of steel		
		4th		2nd		KALI PUJA/DIWALI (HOLIDAY)
4th				Explain the process of cyaniding, carbo-nitriding of steel		
5th				Explain the plasma nitriding		
5th				1st		UNIT-10
		2nd		Explain salt bath nitro carburizing		
		4th		3rd Monthly Test		
		5th		3rd Monthly Test		
		2nd		1st		
2nd	Explain Toyota diffusion process					
4th	Second class test					
5th	Discuss different alloy steels – low alloy and high alloy steels					
3rd	1st			Discuss the effect of alloying elements		
	2nd	Discuss die steel, high speed steel, high strength, low alloy steels, stainless steels.				
	4th	Discuss the heat treatment of tool steel and stainless steel.				
	5th	Previous year question Discussion				
	NOVEMBER					


Course Expert 11/7/2025

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Academic Co-ordinator 14/7/2025

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