

Govt. Polytechnic, Sonepur  
Session: 2024-25

Discipline: <b>Metallurgy Engineering</b>	Semester: <b>5th</b>	Name of the Teaching Faculty: <b>Amulya kumar Sahoo</b>		
Subject:- <b>HTFFF(TH2)</b>	No. of days/per week class allotted:4	Semester from Date: <b>01. 07. 2024</b> to Date: <b>8.11.2024</b> No. of weeks: 15		
Week	Class Day	Module	Lecture Topics	
1	1	Chapter -1: Fluid Flow	Discuss types of fluid	
	2		Explain details ideal and real fluid.	
	3		Discuss the type of flow.	
	4	Chapter -1: Fluid flow	Explain details stream line and turbulent flow.	
2	5		Explain details steady and unsteady flow.	
	6		State and explain Bernoullis equations.	
	7		Discuss the flow through orifices,Pitot tube and venturies meter.	
	8		Define and calculate loss of head(friction head) in staright pipes.	
3	9		Define various channel with sudden enlargement and sudden contraction.	
	10		-do-	
	11		Chapter-2 : Heat Flow	Discuss the elementary idea of different mode of heat transfer.
	12		-do-	
4	13		Define and derive fouries law.	
	14		Explain and calculate the steady state heat conduction through flat walls.	

	15		-do-
	16		Define convection
5	17		-do-
	18	Chapter-2: Heat Flow	Explain details various heat transfer mode.
	19		Define natural convection..
	20		Discuss about natural convection.
6	21		Discuss about forced convection.
	22		Explain details forced convection.
	23		-do-
	24		Tutorial Class
7	25	Chapter-2:Heat flow	Differentiate between natural and forced convection.
	26		Explain details radiations
	27		State the stefan Boltzmann"s law
	28		Discuss about emissivity of black bodies and grey bodies.
8	29	Chapter-3:Furnaces	Classify the furances based on uses.
	30		Explains details Heat source and material movements.
	31		-do-
	32		Discuss about the following Metallurgical furances.
9	33		Explain details soking pits, reheating furance.
	34		Explains details heat tratement,smelting, and refining furnces.
	35		Explains details Electric furances as arc,resistance,induction furances.
	36		-do-



10	37	Chapter-4: Furnaces	State principle of heat generation Electric arc furnaces etc.
	38		Explains details Resistances furnaces.
	39		-do-
	40		Discuss about the induction furnaces.
11	41	Chapter-5: Furnaces	-do-
	42		Discuss about on heat losses.
	43		-do-
	44		Explain details about heat balance and furnace efficiency.
12	45		-do-
	46		Again explains details heat balance furnace.
	47		Reaction in different parts of blast furnace
	48		-do-
13	49	Chapter-6: Furnaces	Tutorial classes
	50		Tutorial classes
	51		Explains details the type of heat recovery system..
14	52		Discuss about the waste heat recovery system.
	53		-do-
	54		Explain details the regeneration heat recovery system and recuperates.
	55		Revision Class for Chapter 1, and 2
	56		Revision Class for Chapter 3&4
15	57		Revision Class for Chapter 5&6
	58		Class test
	59		Important question discussion
	60		Important question discussion

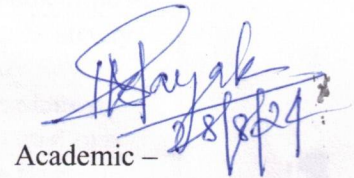
Learning Resources:			
Sl.No	Title of the Book	Name of Authors	Name of Publisher
1.	Elements of Fluid Mechanics	V.C .Sheshadri& U.Patankar.	Harcourt,Brace&World
2.	Heat Transfer	Isa Chenkov& Sukomel.	Mir Publishers MOSCOW
3.	Principles of Extractive Metallurgy	A.Ghosh&H.S.Ray	New Age
4.	Metallurgical Furnaces	Krivandrim& Markov	Mir Publishers MOSCOW
5.	Heat and Mass transfer	R.K.RAJPUT	S.CHAND

Amulya Kumar Sahoo  
Date - 28/08/2024

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