Discipline: Metallurgical Engineering	Semester: 4th semester	Name of the Teaching Faculty Tushar Daspattanayak
Subject sponge iron andferro alloys	No of days /week class allotted:0 4	Semester from Date:10-03-2022 to 30-06-2022

Month	week	Class Day	Theory topics
March	3rd	1st	Explain historical developments ofsponge iron
		2nd	Explain reason for rapid growth ofDR processes
		3rd	Explain chronological evolution ofDRI process
	4th	1st	Explain conventional vs DRI steelmaking & Explain direct reduction of iron ore
		2nd	Explain principle of direct reductionprocess
		3rd	Explain reaction between coal,oxygen and carbon dioxide
		4th	Explain reaction between iron oreand Co
	5th	1st	Explain reaction mechanism in coalbased DRI process
		2nd	Explain reaction mechanism in gasbased DRI process
		3rd	Explain reaction mechanism in gasbased DRI process
April	2nd	1st	Explain reduction by carbon monoxide & Explain reduction by hydrogen ,boudourd reaction
		2nd	Explain reduction by carbon and carbondeposition
		3rd	Explain kinetics in DRI
		4th	Explain factor influencingreducibility of iron ore
		5th	Explain rate controlling theories
	3rd	1st	Explain coal based DRI processSL/RN,CODIR,ACCAR process

		2nd	Explain TDR,OSIL,Krupp Reinprocess
		3rd	Explain coal based processINMETCO,FASTMET,ITMK3 , EXPLAIN tunnel kiln process, kinglor-meter ,hogans
	4th	1st	Explain gas based process HYL process, MIDREX,Fluidised bed process
		2nd	Explain HIB,Uses of DRI in ironmaking and steel making
		3rd	Explain raw material of sponge iron
	5th	1st	Explain chemical and physical test on ironore
		2nd	Explain test on coking coal, proximity andultimate analysis
		3rd	Explain of iron ore size on reduction
May	1st	1st	Explain carbon enrichment ofsponge iron
	2nd	1st	Explain flow of solids in the reactor or kiln
		2nd	Explain how carbon enrichment of spongeiron is performed
		3rd	Explain parameters of sponge ironproduction
		4th	Explain non magnetic percentage in the kilndischarge
	3rd	2nd	Explain daily operating parameters
		3rd	Explain abnormalities
		4th	Explain major problems in DRI kilnoperation, Explain shut down procedure
	4th	1st	Explain the start up process
		2nd	Explain accretion formation
		3rd	Explain key notes on the process plantoperations
		4th	Explain sampling
June	1st	1st	Explain Chemical analysis of ironore and lime stone,coal
		2nd	Explain quality control of input raw

			Material, Explain determination of total iron, ferrousiron		
	2nd	1st	Explain air pollution mitigation measures Explain fugitive dust generation Explain water pollution mitigationmeasures		
		2nd	Explain solidwaste generation and disposal		
		3rd	Explain hazardous wastes and chemicals		
		4th	Explain occupational health and safety		
	3rd	1st	Explain environmental monitoring andenvironmental standards		
		2nd	Explain introduction of ferro alloys		
	4th	1st	Explain different types of ferro alloys		
		2nd	Explain general method of producing ferroalloy		
		3rd	Explain refining of ferro alloys		
		4th	Explain production of individual ferro alloys		