PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH

LESSON PLAN

Session-2022-2023

Discipline: Metallurgical Engineering Engg. Semester: 5th

Name of the Teaching Faculty: Anadi charan Jena

Subject: FM-II No. of Days/per week class allotted 04

Semester From Date : 15.9.22 To Date : 22.12.22 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
1st	1st Topic-1	History of Steelmaking Processes, Blister steelmaking
	2nd	Shear, Crucible, Bessemer Steel making processes
	3rd	open hearth steel making process, Principles
	4th	General reactions of steelmaking process
2nd	1st	Acid and Basic Steelmaking
	2nd	Carbon reactions, conditions
	3rd	Sulphur Reactions, Conditions
	4th	Manganese reactions, conditions
3rd	1st	Silicon reactions, conditions
	2nd	phosphorous reactions, conditions
	3rd Topic-2	Raw materials for steelmaking
	4th	List of raw materials, Pig iron, scrap, deoxidisers

Signature of the Faculty

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Week	Class Day	Theory /Practical Topics
4th	1st	Raw materials available in India
	2nd Topic-3	LD process, General idea
	3rd	Raw materials for LD process
	4th	Construction of LD converter
5th	1st	Operation of LD process, the heat
	2nd	Reactions in LD converter
	3rd	carbon, Silicon, Sulphur, -- reactions
	4th	Quality of LD steel, composition of LD slag
6th	1st	Advantages and Limitations of LD Process
	2nd	Developments in LD process
	3rd	OLP process, principles
	4th	combined blowing process

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Week	Class Day	Theory /Practical Topics
7th	1st	Comparison between Top and Bottom blowing.
	2nd Topic-4	Electric furnace process, principles.
	3rd	Steps in Electric arc furnace process.
	4th	Advantages and limitation of Electric Process.
8th	1st	Induction furnace process, principles.
	2nd	Advantages and Limitations of Induction Process.
	3rd Topic-5	Recent steelmaking processes, principles
	4th	Ajax process of steelmaking
9th	1st	Merits & Demerits of Ajax Process
	2nd	OBM process, principles
	3rd	Merits and Demerits of OBM process.
	4th	Spray steelmaking process.

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Week	Class Day	Theory /Practical Topics
10th	1st Topic-6	Deoxidation practice, principles
	2nd	Deoxidisers and their uses.
	3rd	Killed steel and semi-killed steel.
	4th	Rimming steel, Differences between them.
11th	1st Topic-7	Pitside practice, Teeming methods
	2nd	Direct teeming, adv. and disadv.
	3rd	Tundish teeming, bottom teeming
	4th	Ingot defects, remedies
12th	1st Topic-8	Continuous casting of steel
	2nd	principles and operations of continuous casting
	3rd	Types of continuous casting machines.
	4th	Horizontal, S-type casters.

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Week	Class Day	Theory /Practical Topics
13th	1st	Mould and Mould maintenance.
	2nd	Advantages and disadvantages
	3rd	Continuous Casting of billets and blooms
	4th	Continuous casting of slabs, principles of operation
14th	1st Topic-9	Secondary steelmaking process, Introduction
	2nd	VAD process, Sketch.
	3rd	Operation of VAD, Quality of VAD steel
	4th	VOD process, Sketch
15th	1st	Operation and quality of VOD steels
	2nd	AOD process, General principles.
	3rd	Quality of AOD steels, Steel Degassing.
	4th	Different degassing processes.

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Signature of the Faculty