LESSON PLAN FOR ACADEMIC SESSION: 2025-26 (WINTER)

Discipline: Metallurgical Engineering	**Semester : 5th**	**Name of the Teaching Faculty : Arpita Jena**
Subject : FERROUS METALLURGY - II	No. of days / week class allotted	Semester From : 15/07/2025 to 15/11/2025 Nos. of Weeks per semester : 15
Week	**Class Day**	**Theory Topics**
1ST	1st	Brief history of principles of steel making & processes of steel making.
	2nd	Bistre steel making
	3rd	Shear steel making
	4th	Crucible steel making
2ND	1st	Bessemer steel making.
	2nd	Open hearth steel making
	3rd	Explain these processes with suitable sketches.
	4th	Mention different reactions involved in steel making.
3RD	1st	Differentiate between acid process & basic process of steel making.
	2nd	Explain the principles and conditions required in removal of „P“, „S“, Si“, „Mn“ and „C“ in steel making.
	3rd	List the different raw materials required for steel making
	4th	List the different raw materials required for steel making
4TH	1st	State the important raw materials available in India
	2nd	Give different raw materials of LD process
	3rd	Give different raw materials of LD process
	4th	Explain the construction and operation of LD converter
5TH	1st	Explain the construction and operation of LD converter
	2nd	Describe the refining reaction in LD converter with reference to decarburization and dephosphorisation.
	3rd	Mention the quality of steel and composition of slag in LD process
	4th	Give the advantages and limitations of LD process.
6TH	1st	Describe different developments of LD process

	2nd	Bottom, top and combined blowing
	3rd	Multi nozzle converter.
	4th	Explain OLP process
7TH	1st	Explain the principle, types of slags prepared by electric arc furnace
	2nd	Explain the steps of electric arc furnace heating to produce steel
	3rd	Mention advantages of electric arc furnace process.
	4th	Explain the steel making induction furnace.
8TH	1st	Mention advantages and limitations of induction furnace process
	2nd	Briefly describe the principle of operation
	3rd	Merits arid demerits of the recent steel making processes
	4th	Ajax Process
9TH	1st	OBM Process
	2nd	Spray Steel Making Process
	3rd	Revision
	4th	Explain different De-Oxidisers and their use.
10TH	1st	Explain different De-Oxidisers and their use.
	2nd	Differentiate between killed steel semi killed steel and rimming steel
	3rd	Differentiate between killed steel semi killed steel and rimming steel
	4th	Describe different teeming methods such as: Direct pouring
11TH	1st	Tundish teeming and
	2nd	Bottom teeming
	3rd	Describe different ingot defects, their causes and remedies
	4th	Explain the principle and operation of continuous casting
12th	1st	Explain the principle and operation of continuous casting
	2nd	Describe different types of casters.
	3rd	Describe about the moulds and mould maintenance in continuous casting.
	4th	Describe about the moulds and mould maintenance in continuous casting.

13th	1st	Discuss advantages of continuous casting
	2nd	Continuous casting of Billets,Blooms and Slabs.
	3rd	Continuous casting of Billets,Blooms and Slabs.
	4th	Explain the principle operation and advantages of secondary steel making processes.
14th	1st	VAD Process
	2nd	VOD Process
	3rd	AOD Process
	4th	Describe the stream degassing process.
15th	1st	Class Test
	2nd	Revision
	3rd	Class Test
	4th	Revision

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