LESSON PLAN

Discipline: **Metallurgy Engineering**	Semester: **3rd semester**	Name of the Teaching Faculty: **Miss Sitanjali Khuntia**
Subject: **Fuel & Refractories** Sub code: **Th.3**	No of days /week class allotted:**04/week**	Semester from Date:**16/09/2022 to 22/12/2022** No of weeks:**15**

Month	Week	No of periods available	Class Day	Theory topics to be covered
September	1st	04P	19-09-22	1.0 Fuels: 1.1 Define the Fuel 1.2 Classify the types of fuel
			21-09-22	1.3 State the importance of Solid, Liquid and Gaseous fuels
			21-09-22	1.4 Describe different fuels and resources of India
			22-09-22	Solid Fuels: 2.1 COAL 2.1.1 Explain the origin of coal
	2nd	04P	26-09-22	2.1.2 State the composition of coal
			26-09-22	2.1.3 Discuss the characteristics and significance of constituents
			28-09-22	Revision
	3rd	04P	29-09-22	2.1.4 proximate and ultimate analysis
			10-10-22	2.1.4 Distinguish between proximate and ultimate analysis
			12-10-22	2.1.5 Define the calorific value of coal
			12-10-22	2.1.6 Describe coking properties and swelling index of coal 2.1.7 Discuss the criteria of selection of metallurgical coal
			13-10-22	Revision
October	4th	04P	17-10-22	Monthly Test
			19-10-22	2.2 COKE: 2.1.1 Discuss the scope and objectives of carbonization of coal
			19-10-22	2.1.2 Explain the carbonization of coal
			20-10-22	2.1.2 Explain the carbonization of coal
	5th	04P	26-10-22	2.1.3 Differentiate between high temperature carbonization and low temperature carbonization 2.1.4 State the merits and demerits of H.T.C and L.T.C
			26-10-22	2.1.5 Discuss different taste carried out for coke (Shatter and Micum index)
			27-10-22	3.0 Liquid Fuels 3.1.1 Explain origin and constitution of petroleum
			31-10-22	3.1.2 Discuss the properties of petroleum products

November

6th	03P	02-11-22	3.1.3 Discuss the distillation process of crude petroleum
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		03-11-22	3.1.4 Explain the production and uses of coal tar.
7th	04P	07-11-22	3.1 Testing of liquid Fuels: 3.1.1 Define specific gravity, viscosity
		09-11-22	3.1.1 Define flash point, cloud point & pour point, aniline point octane number and cetane number.
		09-11-22	3.1.2. Discuss the methods of testing of following properties: Specific gravity, viscosity
		10-11-22	3.1.2. Discuss the methods of testing of following properties: flash point, cloud point and pour point
8th	04P	14-11-22	Revision
		16-11-22	
		16-11-22	
		17-11-22	Internal assessment/Class Test
9th	04P	21-11-22	4.0 Gaseous Fuels: Explain the production and utilization of following gaseous fuels: Methane
		23-11-22	4.0 Gaseous Fuels: Explain the production and utilization of following gaseous fuels: water gas
		23-11-22	4.0 Gaseous Fuels: Explain the production and utilization of producer gas
		24-11-22	4.0 Explain the production and utilization of coke oven gas, blast furnace gas, natural gas, mixed gas
10th	03P	28-11-22	5.0 Combustion 5.1 Discuss the elementary principle of combustion
		30-11-22	5.1 Hess's law of constant heat summation,
		30-11-22	5.1 Explanation Kirchoff's law.
11th	01P	01.12.22	5.2 Some important factors to remember for numerical calculations of combustion reactions.
12th	04P	05-12-22	5.2Work out simple combustion calculation.
		07-12-22	5.2Work out simple combustion calculation
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		08-12-22	5.2Work out simple combustion calculation.
13th	04P	12-12-22	Monthly Test
		14-12-22	6.2 Explain the desirable properties of Refractories in details
		14-12-22	6.3 Discuss the raw – materials, methods of manufacturing and properties of silica, fireclay magnesia, dolomite, chrome magnesite, graphite and magnesia carbon bricks.

		15-12-22	1. Special Refractories Discuss about the special refractories like high alumina, mullite, SIC, Zirconia
14th	04P	19-12-22	2. Give criteria for selection and types of refractories selected for blast furnace, L.D., open hearth, arc furnace, ladle, soaking pit, coke oven, reheating furnaces, copper smelting flash and reverberatory furnaces.
		21-12-22	Revision & Doubt Clearing Class
		21-12-22	
		22-12-22	

PREPARED BY
Miss Sitanjali Khuntia
Faculty, METALLURGY
OSME, KEONJHAR

HOD
METALLURGY
ENGINEERING
OSME, KEONJHAR

PRINCIPAL
OSME, KEONJHAR