LESSON PLAN (4th semester)

FUELS AND CERAMIC KILNS

SL.No	TOPIC	Reference	Assignment	Comment /Periods
1.0	I INTRODUCTION TO FUEL AND COMBUSTION	O. P gupta		
1.1	state and explain introduction to solid liquid and gaseous fuels.	O. P gupta		One period
1.2	Explain non conventional source of energy for burning ceramic kiln.	O. P gupta		One period
1.3	State and explain combustion of fuels.	O. P gupta		One period
1.4	Conservation of fuels.	O. P gupta		One period
1.5	terms and definitions related to fuel testing.	O. P gupta		One period
2.0	SOLID LIQUID AND GASEOUS FUELS			
2.1	State various types of solid fuels.	O. P gupta		One period
2.2	Classify solid fuels.	O. P gupta		One period
2.3	Describe methods of formation of coal and types of coal.	O. P gupta		One period
2.4	State and explain the properties of coal.	O. P gupta		One period
2.5	Describe in detail how Coke is prepared in Coke oven.	O. P gupta		One period
2.6	State the properties of coke.	O. P gupta		One period
2.7	Describe the procedure for storage of coal.	O. P gupta		One period

2.8	State the reasons for washing of coal.	O. P gupta		One period
2.9	Describe briefly the gradation of coal.	O. P gupta		One period
2.10	Testing of solid fuel.	O. P gupta		Two periods
2.11	Classify liquid fuels.	O. P gupta		One period
2.12	describe the process of refining crude petroleum.	O. P gupta		One period
2.13	state and explain the properties of various liquid fuels and petroleum by products(introduction only).	O. P gupta		One period
2.14	State the advantages of liquid fuels over solid fuels.	O. P gupta		One period
2.15	testing of liquid fuels such as flash point ,fire point ,pour point ,smoke point, dew point etc. (General ideas only).	O. P gupta		One period
2.16	Describe the procedure for storage of liquid fuels.	O. P gupta		One period
2.17	Classify gaseous fuel	O. P gupta		One period
2.18	state and explain the properties of various gaseous fuels and their application in industries and blast furnace gas, Coke oven gas,BOF gas, coal gas, oil gas mixed gas.	O. P gupta		Two periods
2.19	Explain in details the manufacturing method of procedure gas and water gas.	O. P gupta		One period
2.20	List the advantages of gaseous fuel over liquid and solid fuel.	O. P gupta		One period
2.21	Describe the manufacturing methods	O. P gupta		One period

	of biogas.			
2.22	Testing gaseous fuel (introduction only)	O. P gupta		One period
2.23	Rocket fuel and Nuclear fuel.	O. P gupta		One period
3.0	CERAMIC KILNS			
3.1	Define kiln, furnace and oven.	O. P gupta		Two periods
3.2	Classify ceramic kiln in details.	O. P gupta		Two periods
3.3	describe the operation and uses of the following kilns in details:- a) downdraft kiln b) updraft kiln c) chamber kiln d) tunnel kiln and roller Hearth kiln e) muffle kiln f)shaft kiln g) glass pot furnace h) glass tank furnace i) electric furnace for glass melting j) rotary kiln k) Coke oven	O. P gupta		 One period One period One period one period One period One period One period One period One period One period
3.4	List the advantages of continuous kiln over period kiln.			One period
3.5	Describe various type of kiln furniture used in ceramic kilns.			One period
3.6	Describe various types of furnace and kilns accessories used in kiln operation.			One period

4.0	FURNACES (introduction only)	O. P gupta		
4.1	Classification of furnaces.	O. P gupta		One period
4.2	Furnaces used in iron and steel plant.	O. P gupta		One period
4.3	Fuels used in steel plant furnaces and their characteristics.	O. P gupta		One period
4.4	Sketch the following furnaces showing various section and explain their uses.	O. P gupta		One period
5.0	PYROSCOPE AND PYROMETER			
5.1	Define pyroscope and pyrometer.	O. P gupta		One period
5.2	Disuses various type of pyroscopes.	O. P gupta		One period
5.3	Describe various types of cones used in ceramic kiln firing.	O. P gupta		One period
5.4	state the requirements of Pyroscope and pyrometer in kiln firing.			One period
5.5	Describe various pyrometers used in ceramic kiln firing.			One period