UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING, ROURKELA

LESSON PLAN

SESSION: 2022 - 2023

DEPARTMENT OF CERAMIC TECHNOLOGY

.SUBJECT CODE: TH-3

NAME OF THE SUBJECT: FUELS AND CERAMIC KILNS

BRANCH: CERAMIC TECHNOLOGY

SEMESTER: DIPLOMA 4th SEM

NUMBER OF CLASS ALLOTED PER WEEK: 4

TOTAL PERIODS ALLOTED TO THE SUBJECT ACCORDING TO STEVT: 60

NAME OF THE FACULTY : RAMESH CHANDRA PRUSTY

Week/Date	Lecture	Topic to be covered	Remarks
1st week 14/02/23 To 16/02/23	1st	1.1. State and explain introduction to solid, liquid and gaseous fuels	
	2nd	1.2. Explain Non-conventional source of energy for burning ceramic kiln	
	3rd	1.3. State and explain combustion of fuels	
2nd week 20/02/23 To 23/02/23	1st	1.4. Conservation of fuels.	
	2nd	1.5 Terms & Definition relating to fuel testing.	

	3rd	2.1 State various types of solid fuels.	
	4th	2.2 Classify solid fuels.	
3rd week 27/02/23 To 28/02/23	1st	2.3. Describe methods of formation of coal& types of coal.	
	2nd	2.4. State & explain the properties of coal.	
4THweek 01/03/23 To 02/03/23	1st	2.5. Describe in detail how coke is prepared in coke oven.	
	2nd	2.6. State the properties of coke.	
5THweek 06/03/23 To 09/03/23	1st	2.7. Describe the procedure for storage of coal.	
	2nd	2.8. State the reasons for washing of coal.	
	3rd	2.9. Describe briefly the gradation of coal.	
	4th	2.10 Testing of solid fuel.	
6THweek 13/03/23 To 16/03/23	1st	2.11 Classify liquid fuels.	
	2nd	2.12 Describe the process of refining crude petroleum. 2.13 State and explain the properties of various liquid fuels and petroleum by products.	
	3rd	2.14 State the advantages of liquid fuels over solid fuels. 2.15 Testing of liquid fuels such as flash point, fire point, pour point, smoke point, dew point	
	4th	2.16 Describe the procedure for storage of liquid fuels.	
7THweek 20/03/23 To 23/03/23	1st	2.17 Classify gaseous fuel.	
	2nd	2.18 State and explain the properties of various gaseous fuels and their application in industries & Blast Furnace Gas, Coke oven gas, BOF Gas, Coal Gas, Oil Gas Mixed Gas.	
8THweek 27/03/23 To 29/03/23	1ST	2.19 Explain in details the manufacturing method of producer gas& Water Gas. 2.20 List the advantages of gaseous fuel over liquid and solid fuel.	
	2ND	2.21 Describe the manufacturing methods of biogas.	
	3RD	2.22 Testing Gaseous fuel.(Introduction only) 2.23 Rocket fuel and nuclear fuel.	
9THweek 03/04/23	1ST	3.1. Define kiln, furnace and oven 3.2. Classify ceramic kiln in details	

To 06/04/23	2ND	3.3. Describe the operation&uses of the following kilns in details :-	
	3RD	a) Down Draft kiln b) Up draft kiln. c) Chamber kiln d) Tunnel kiln & 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	
10TH week 10/04/23 To 15/04/23	1st	3.4. List the advantages of continuous kiln over periodic kiln	
	2nd	3.5. Describe various type of kiln furniture used in ceramic kilns	
	3rd	3.6. Describe various types of furnace and kiln accessories used in kiln operation.	
11 TH week 17/04/23 To 21/04/23	1ST	4.1 Classification of furnaces.	
	2nd	4.2 Furnaces used in Iron & steel plant .	
12TH week 24/04/23 To 29/04/23	1ST	4.3 Fuels used in steel plant furnaces & their characteristics .	
	2ND	4.4 Sketch the following furnaces showing various section& explain their uses.	
	3RD	a) Blast furnace.	
13TH week 01/05/23 To 04/05/23	1ST	b) Cupola	
	2ND	c) Open hearth furnace	
	3RD	d) Ladle refining furnace	
	4TH	e) Basic Oxygen Furnace.	
14TH week 08/05/23 To 12/05/23	1ST	f) Electric Arc Furnace etc.	
	2ND	5.1 Define pyroscope and pyrometer.	
	3RD	5.2 Disuses various type of pyroscopes.	
	4TH	5.3 Describe various types of cones used in ceramic kiln firing	
15TH week 15/05/23 To 18/05/23	1ST	5.5 Describe various pyrometers used in ceramic kiln firing.	
	2ND	5.4 State the requirements of pyroscope and pyrometer in kiln firing.	