Lesson Plan

Name : Sonia

Discipline : Common for all branches

Year : 1st

Subject : Applied Chemistry

Code : 180014

Duration : 16 weeks (09/01/2020 to 30/04/2020)

Work Load : 2 Lectures and 1 Practical per week

Week	Theory		Practical	
	Lecture Day	Topic (including assignment/ test)	Practical Day	Topic
1st	1st	General Steps of metallurgy a) Crushing b) Pulverization of ore c) Concentration or purification of ore: (i) Gravity separation method (ii) froth flotation method d) Oxidation of ore: i) Roasting. ii) Calcination Definition of metallurgy, types of metallurgy	1st	To determine the percentage of ash in given sample of coal.
	2nd	General Steps of metallurgy e) Crushing f) Pulverization of ore g) Concentration or purification of ore: (j) Gravity separation method (ii) froth flotation method h) Oxidation of ore: i) Roasting. ii) Calcination	2nd	To determine the percentage of ash in given sample of coal.
2nd	1st	Reduction: i) Smelting (Pyrometallurgy) ii) Electrolytic reduction	1st	To determine the percentage of ash in given sample of coal.
	2nd	Refining of Metal: Electrolytic refining	2nd	To determine the percentage of ash in given sample of coal

3rd	**1st**	Definition of alloy, types of alloys and purpose of alloying.	**1st**	**Practical Practice**
	2nd	Definition of fuel, classification of fuel a) on the basis of physical state b) on the basis of source.	**2nd**	**Practical Practice**
4th	**1st**	Test	**1st**	To determine the percentage of volatile and non volatile substance in given mixture.
	2nd	Characteristics of good fuel, advantages of gaseous fuel over solid fuels. Definition of calorific value, HCV and LCV.		
			2nd	To determine the percentage of volatile and non volatile substance in given mixture.
5th	**1st**	Coal- Proximate analysis of coal and its importance.	**1st**	To determine the percentage of volatile and non volatile substance in given mixture.
	2nd	Fuel quality rating- octane number and cetane number (definition only)		
			2nd	To determine the percentage of volatile and non volatile substance in given mixture.
6th	**1st**	Gaseous fuel: Composition, calorific value and application of CNG, LPG and biogas.	**1st**	**Practical Practice**
	2nd	Gaseous fuel: Composition, calorific value and application of CNG, LPG and biogas.	**2nd**	**Practical Practice**
7th	**1st**	Type of water: Soft and hard water.	**1st**	To determine the viscosity of lubricant by using Redwood viscometer.
	2nd	Types of hardness of water . Units of hardness of water: ppm, mg/L (with simple numericals).		
			2nd	To determine the viscosity of lubricant by using Redwood viscometer.
8th	**1st**	Test	**1st**	To determine the viscosity of lubricant by using Redwood viscometer.
	2nd	Disadvantages of using hard water in boiler. a) Scale and sludge formation b) Boiler Corrosion c) Caustic embrittlement		
			2nd	To determine the viscosity of lubricant by using Redwood viscometer.

9th	**1st**	Disadvantages of using hard water in boiler. a) Scale and sludge formation b) Boiler Corrosion c) Caustic embrittlement	**1st**	**Practical Practice**
	2nd	Qualities of drinking (potable) water	**2nd**	**Practical Practice**
10th	**1st**	Lubricant and lubrication.	**1st**	To determine total acid number (TAN) or Total acid value of given lubricant (liquid).
	2nd	Functions of lubricants	**2nd**	To determine total acid number (TAN) or Total acid value of given lubricant (liquid
11th	**1st**	Classification of lubricants: solid, semisolid and liquid lubricants with examples.	**1st**	To determine total acid number (TAN) or Total acid value of given lubricant (liquid).
	2nd	Type of lubrications – hydrodynamic and boundary lubrication with illustrative diagrams. Properties of lubricants:- Physical properties- viscosity	**2nd**	To determine total acid number (TAN) or Total acid value of given lubricant (liquid).
12th	**1st**	Test	**1st**	**Practical Practice**
	2nd	Properties of lubricants:- Chemical properties- TAN or TAV (Total acid number), emulsification, aniline point and iodine value. viscosity index, cloud point, pour point, flash point, fire point, oiliness	**2nd**	**Practical Practice**
13th	**1st**	Definition of polymer, Monomer, Degree of Polymerization	**1st**	To determine total acid number (TAN) or Total acid value of given lubricant (liquid).
	2nd	Monomer and uses of PE, PVC, PS, Teflon, Nylon-66, Bakelite	**2nd**	To determine total acid number (TAN) or Total acid value of given lubricant (liquid).

14th	**1st**	Brief introduction to addition and condensation polymers with suitable examples (PE, PVC, PS, Teflon, Nylon-66, Bakelite).	**1st**	Detection of iron metal in the given solution of rust.
	2nd	Brief introduction to addition and condensation polymers with suitable examples (PE, PVC, PS, Teflon, Nylon-66, Bakelite).	**2nd**	Detection of iron metal in the given solution of rust.
15th	**1st**	• **Assignment Work on Organic Chemistry**	**1st**	**Practical Practice**
	2nd	Definition of plastics, thermoplastic and thermosetting polymer with example, difference between thermoplastic and thermosetting polymers.	**2nd**	**Practical Practice**
16th	**1st**	Definition of plastics, thermoplastic and thermosetting polymer with example, difference between thermoplastic and thermosetting polymers.	**1st**	Detection of iron metal in the given solution of rust.
	2nd	Uses of polymer and plastic in daily life and in industries. And Test	**2nd**	Detection of iron metal in the given solution of rust.