

## TEACHING PLAN FOR THEORY

**Name of Subject Teacher: Dr. Santosh Kumar**

<b>Subject: Engg. Chemistry      Class: E Branch: F.Y. AllYear 2017-18</b>		
<b>Lecture No</b>	<b>Scheduled Date</b>	<b>Topics to be covered on the scheduled date</b>
1	18/7/2017	Syllabus Discussion, Discussion on course objective & course outcome
		<b>UNIT-1: Water technology and Green chemistry</b>
2	18/7/2017	<b>Water technology</b> - Impurities in water. Hardness of water and its determination by EDTA method
3	19/7/2017	Alkalinity of water and its determination and Numerical on alkalinity and hardness.
4	20/7/2017	Illeffects of hard water in boilers.
5	21/7/2017	Boiler feed water treatment -1) Internal treatment -calgon and phosphate conditioning; 2) External treatment- a) Zeolite process
6	21/7/2017	<b>Tutorial-1 :Calculations of hardness</b>
7	25/7/2017	External treatment- a) Zeolite process& its numerical b) Ion exchange method.
8	26/7/2017	2) Desalination of brackish water /Purification of water by Reverse osmosis and Electro dialysis
9	27/7/2017	<b>Green Chemistry:</b> Introduction, Twelve Principles of green Chemistry
10	28/7/2017	Major uses - traditional and green pathways of synthesis of adipic acid and indigo dye
11	28/7/2017	<b>Tutorial-2 :Numerical on Zeolite</b>
		<b>Unit 2 – Electro analytical Techniques</b>
12	1/8/2017	Introduction: Types of reference electrode(calomel electrode), indicator electrode (glass electrode),

13	2/8/2017	Ion selective electrode, Half cell reaction and complete cell reaction
14	3/8/2017	Conductometry: Introduction, Kohlrausch's law, conductivity cell, measurement of conductance,
	2-3/8/2017	<b>TAE-1</b>
15	4/8/2017	Applications- Conductometric titrations
16	4/8/2017	<b>Tutorial-3: Conductometry</b>
17	8/8/2017	Acid-base titrations and Precipitation titrations
18	9/8/2017	Potentiometry: Introduction, Potentiometric titrations- differential plots. Applications- redox titrations Fe/Ce titration
19	10/8/2017	UV/Visible spectroscopy: Interaction of radiation with matter, Beer lambert's law, chromosphere and auxochrome.
20	11/8/2017	Types of electronic transitions; Instrumentation and principle - block diagram of single and double beam spectrophotometer. Applications of uv-visible spectroscopy.
21	11/8/2017	<b>Tutorial-4: Potentiometry</b>
		<b>Unit-3 Synthetic Organic Polymers</b>
22	16/8/2017	Introduction, functionality of monomer, polymerization-Free radical mechanism
23	17/8/2017	step growth polymerization, Tm and Tg
	17/8/2017	<b>TAE-2</b>
24	18/8/2017	Thermoplastic and Thermosetting polymers, Compounding of plastics
25	18/8/2017	<b>Tutorial-5: Free radical mechanism</b>
	21/8/2017- 23/8/2017	<b>CAE-1</b>

26	24/8/2017	Preparation, properties and engineering applications of: Polyethylene (LDPE & HDPE) and Bakelite.
27	25/8/2017	Elastomers - Natural rubber- processing and vulcanization by sulphur. Synthetic rubbers- SBR
29	25/8/2017	<b>Tutorial-6:Vulcanization of natural rubber</b>

30	29/8/2017	Speciality polymers: Engineering thermoplastics-Polycarbonate, Biodegradable polymers- Poly(hydroxybutaratehydroxyvalanate),
31	30/8/2017	Conducting polymers- Polyacetylene.
32	31/8/2017	Liquid crystalline polymers – Kevlar.
	31/8/2017	<b>TAE-3</b>
		<b>UNIT-4 FUEL AND COMBUSTION</b>
33	1/9/2017	Fossil Fuels: Definition, Calorific values, Determination- Bomb calorimeter, Numerical
34	1/9/2017	<b>Tutorial-7: Numerical on Bomb Calorimeter</b>
35	6/9/2017	Boy's gas calorimeter , Numerical
36	7/9/2017	Solid fuel-Proximate analysis ,Numerical
37	8/9/2017	Ultimate analysis , Numerical
38	8/9/2017	<b>Tutorial-8: Numericals on Boy's Gas Calorimeter</b>
39	12/9/2017	Liquid fuels-Petroleum composition and refining

40	13/9/2017	Octane number of petrol, Cetane number of diesel, Poweralcohol, Biodiesel
	13/9/2017	<b>TAE-4</b>
41	13/9/2017	Gaseous fuel-Composition, properties and applications of NG, Numerical of combustion
42	14/9/2017	Fuelcells- Introduction, applications.
		<b>UNIT-5 CORROSION SCIENCE</b>
43	15/9/2017	Introduction. Types of corrosion- Dry corrosion- mechanism,
44	15/9/2017	<b>Tutorial-9: Numericals on Proximate &amp; Ultimate</b>
45	19/9/2017	Pilling-bed worth rule. Wet corrosion- mechanism.
46	20/9/2017	Factors influencing corrosion- Nature of metal,
	21/9/2017- 23/9/2017	<b>CAE-2</b>
47	26/9/2017	Nature of environment
48	27/9/2017	Cathodic and anodic protection,
	27/9/2017	<b>TAE-5</b>
49	28/9/2017	Use of inhibitors, Protective coatings: surface preparation
50	29/9/2017	a) Metallic coatings: Electroplating & Electroless plating
51	29/9/2017	Tutorial-9: Numericals on combustion of Fuel
52	3/10/2017	b) Non-metallic coatings: chemical conversion coatings

		<b>UNIT-6 Advances in Engineering Chemistry</b>
53	4/10/2017	Nanomaterial: Graphite, Carbon nanotube (CNT) &
54	5/10/2017	Fullerenes- Structure, Properties, Applications
55	6/10/2017	<b>Tutorial-10: Factors Affecting Corrosion</b>
56	6/10/2017	<b>Lubricants:</b> Introduction, classification of lubricants
57	10/10/2017	Liquid, semi– solid (Grease)
	11/10/2017	<b>TAE-6</b>
58	13/10/2017	Biomaterial: classification, Properties, Examples.
59	13/10/2017	<b>Tutorial-11: Electroplating</b>
60	17/10/2017	Biosensor- Introduction, Classification, Applications.
61	18/10/2017	<b>Smart Material:</b> Introduction, Shape Memory Alloy and its
62	19/10/2017	Example, Advantages, Disadvantages, Applications
	23/10/2017 - 25/10/2017	<b>CAE-3</b>