

## TEACHING PLAN FOR THEORY

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

Subject: Engg. Chemistry      Class: G Branch: F.Y. AllYear 2017-18		
Lecture No	Scheduled Date	Topics to be covered on the scheduled date
1	18/7/2017	Syllabus Discussion, Discussion on course objective & course outcome
		<b>UNIT-1: Water technology and Green chemistry</b>
2	19/7/2017	<b>Water technology</b> - Impurities in water. Hardness of water and its determination by EDTA method
3	20/7/2017	Alkalinity of water and its determination and Numerical on alkalinity and hardness.
4	20/7/2017	<b>Tutorial-1 : Calculations of hardness</b>
5	24/7/2017	Illeffects of hard water in boilers.
6	25/7/2017	Boiler feed water treatment -1) Internal treatment -calgon and phosphate conditioning; 2) External treatment- a) Zeolite process
7	26/7/2017	External treatment- a) Zeolite process& its numerical b) Ion exchange method.
8	27/7/2017	2) Desalination of brackish water /Purification of water by Reverse osmosis and Electro dialysis
9	27/7/2017	<b>Tutorial-2 : Numerical on Zeolite</b>
10	31/7/2017	<b>Green Chemistry:</b> Introduction, Twelve Principles of green Chemistry
11	1/8/2017	Major uses - traditional and green pathways of synthesis of adipic acid and indigo dye
		<b>Unit 2 – Electro analytical Techniques</b>
12	2/8/2017	Introduction: Types of reference electrode(calomel electrode), indicator electrode (glass electrode),

13	3/8/2017	Ion selective electrode, Half cell reaction and complete cell reaction
14	3/8/2017	<b>Tutorial-3: Conductometry</b>
15	2-3/8/2017	TAE-1
16	7/8/2017	Conductometry: Introduction, Kohlrausch's law, conductivity cell, measurement of conductance,
17	8/8/2017	Applications- Conductometric titrations
18	9/8/2017	Acid-base titrations and Precipitation titrations
19	10/8/2017	Potentiometry: Introduction, Potentiometric titrations- differential plots. Applications- redox titrations Fe/Ce titration
20	10/8/2017	<b>Tutorial-4: Potentiometry</b>
21	14/8/2017	UV/Visible spectroscopy: Interaction of radiation with matter, Beer Lambert's law, chromophore and auxochrome.
22	16/8/2017	Types of electronic transitions; Instrumentation and principle - block diagram of single and double beam spectrophotometer. Applications of uv-visible spectroscopy.
		<b>Unit-3 Synthetic Organic Polymers</b>
23	17/8/2017	Introduction, functionality of monomer, polymerization-Free radical mechanism
24	17/8/2017	<b>Tutorial-5: Free radical mechanism</b>
	17/8/2017	TAE-2
	21/8/2017- 23/8/2017	CAE-1
25	24/8/2017	step growth polymerization, T <sub>m</sub> and T <sub>g</sub>
26	24/8/2017	<b>Tutorial-6: Vulcanization of natural rubber</b>

27	28/8/2017	Thermoplastic and Thermosetting polymers, Compounding of plastics
28	29/8/2017	Preparation, properties and engineering applications of: Polyethylene (LDPE & HDPE) and Bakelite.
29	30/8/2017	Elastomers - Natural rubber- processing and vulcanization by sulphur. Synthetic rubbers- SBR

30	31/8/2017	Speciality polymers: Engineering thermoplastics-Polycarbonate, Biodegradable polymers- Poly(hydroxybutaratehydroxyvalanate),
31	31/8/2017	<b>Tutorial-7: Numerical on Bomb Calorimeter</b>
	31/8/2017	TAE-3
32	4/9/2017	Conducting polymers- Polyacetylene.
33	6/9/2017	Liquid crystalline polymers – Kevlar.
		<b>UNIT-4 FUEL AND COMBUSTION</b>
34	7/9/2017	Fossil Fuels: Definition, Calorific values, Determination- Bomb calorimeter, Numerical
	7/9/2017	<b>Tutorial-8: Numericals on Bomb Calorimeter</b>
35	11/9/2017	Boy's gas calorimeter , Numerical
36	12/9/2017	Solid fuel-Proximate analysis ,Numerical
37	13/9/2017	Ultimate analysis , Numerical
	13/9/2017	TAE-4
38	14/9/2017	Liquid fuels-Petroleum composition and refining
39	14/9/2017	<b>Tutorial-9: Numericals on Proximate &amp; Ultimate</b>

40	18/9/2017	Octane number of petrol, Cetane number of diesel, Poweralcohol, Biodiesel
41	19/9/2017	Gaseous fuel-Composition, properties and applications of NG, Numerical of combustion
42	20/9/2017	Fuelcells- Introduction, applications.
	21/9/2017- 23/9/2017	CAE-2
		<b>UNIT-5 CORROSION SCIENCE</b>
43	25/9/2017	Introduction. Types of corrosion- Dry corrosion- mechanism,
44	26/9/2017	Pilling-bed worth rule. Wet corrosion- mechanism.
	27/9/2017	TAE-5
45	27/9/2017	Factors influencing corrosion- Nature of metal,
46	28/9/2017	<b>Tutorial-10: Numericals on combustion of Fuel</b>
47	28/9/2017	Nature of environment
48	3/10/2017	Cathodic and anodic protection,
49	4/10/2017	Use of inhibitors, Protective coatings:surface preparation
50	5/10/2017	a)Metallic coatings: Electroplating &Electroless plating
51	5/10/2017	<b>Tutorial-11: Factors Affecting Corrosion</b>
52	9/10/2017	b)Non-metallic coatings: chemical conversion coatings
		<b>UNIT-6 Advances in Engineering Chemistry</b>

53	10/10/2017	Nanomaterial: Graphite, Carbon nanotube (CNT) &
	11/10/2017	TAE-6
54	16/10/2017	Fullerenes- Structure, Properties, Applications
55	17/10/2017	<b>Lubricants:</b> Introduction, classification of lubricants
56	18/10/2017	Liquid, semi– solid (Grease)
57	19/10/2017	Biomaterial: classification, Properties, Examples.
58	19/10/2017	<b>Tutorial-12: Electroplating</b>
59	19/10/2017	Biosensor- Introduction, Classification, Applications.
	23/10/2017 - 25/10/2017	CAE-3
60	26/10/2017	<b>Smart Material:</b> Introduction, Shape Memory Alloy and its
61	26/10/2017	<b>Tutorial-12: Lubricant</b>
62	27/10/2017	Example, Advantages, Disadvantages, Applications