

G. H. RAISONI COLLEGE OF ENGINEERING & MANAGEMENT ,PUNE

First Year B.Tech Department

TEACHING PLAN FOR THEORY

Name of Subject Teacher: Dr. Santosh Kumar

Subject: Engg. Chemistry		Class: A	Branch: F.Y. Year 2016-2017
Lecture No	Scheduled Date	Topics to be covered on the scheduled date	
1	2/1/2017	Syllabus Discussion, Discussion on course objective & course outcome	
		UNIT-1: Water technology and Green chemistry	
2	3/1/2017	Water Technology - Impurities in water. Hardness of water and its determination by EDTA method	
3	5/1/2017	Alkalinity of water and its determination and Numerical on alkalinity and hardness.	
4	6/1/2017	Ill effects of hard water in boilers.	
5	6/1/2017	Tutorial-1 : Calculations of hardness	
6	9/1/2017	Boiler feed water treatment -1) Internal treatment -calgon and phosphate conditioning; 2) External treatment- a) Zeolite process	
7	10/1/2017	External treatment- a) Zeolite process& its numerical b) Ion exchange method.	
8	12/1/2017	2) Desalination of brackish water /Purification of water by Reverse osmosis and Electrodialysis	
9	13/1/2016	Tutorial-2 : Calculations of alkalinity and zeolite numericals	
10	13/1/2016	Green Chemistry : Introduction, Twelve Principles of green Chemistry	
	16/1/2017	TAE-7(any other) Report writing	

11	16/1/2017	Major uses - traditional and green pathways of synthesis of adipic acid and indigo dye
		Unit 2 – Electroanalytical Techniques
12	17/1/2017	Introduction: Types of reference electrode(calomel electrode), indicator electrode (glass electrode),
13	19/1/2017	Ion selective electrode, Half cell reaction and complete cell reaction.
14	20/1/2017	Conductometry: Introduction, Kohlrausch's law, conductivity cell, measurement of conductance,
15	20/1/2017	Tutorial-3:Conductometry
16	23/1/2017	Applications- Conductometric titrations
17	24/1/2017	Acid-base titrations and Precipitation titrations
18	27/1/2017	Potentiometry: Introduction, Potentiometric titrations- differential plots. Applications- redox titrations Fe/Ce titration
19	27/1/2017	Tutorial-4: Numerical onRedox titrations Fe/Ce titration
20	30/1/2017	UV/Visible spectroscopy: Interaction of radiation with matter, Beer lambert's law, chromophore and auxochrome.
21	31/1/2017	Types of electronic transitions; Instrumentation and principle - block diagram of single and double beam spectrophotometer. Applications of uv-visible spectroscopy.
		Unit-3 Synthetic Organic Polymers
22	2/2/2017	Introduction, functionality of monomer, polymerization-Free radical mechanism
23	3/2/2017	Tutorial-5: Types of electronic transitions
24	3/2/2017	step growth polymerization, Tm and Tg
	3/2/2017	TAE-3 Home assignment
25	6/2/2017	Thermoplastic and Thermosetting polymers, Compounding of plastics

26	7/2/2017	Preparation, properties and engineering applications of: Polyethylene (LDPE & HDPE) and Bakelite.
27	9/2/2017	Elastomers - Natural rubber- processing and vulcanization by sulphur. Synthetic rubbers-SBR
28	10/2/2017	Tutorial-6: Free radical mechanism
29	10/2/2017	Speciality polymers: Engineering thermoplastics-Polycarbonate, Biodegradable polymers - Poly(hydroxyl butarate hydroxyl valanate),
	13/2/2017 to 15/2/2017	CAE-I(Unit I & II)
30	16/2/2017	Conducting polymers- Polyacetylene.
31	17/2/2017	Liquid crystalline polymers – Kevlar.
32	17/2/2017	Tutorial - 7: Vulcanization of natural rubber
		UNIT - 4 FUEL AND COMBUSTION
33	20/2/2017	Fossil Fuels: Definition, Calorific values, Determination- Bomb calorimeter, Numerical
34	21/2/2017	Boy's gas calorimeter , Numerical
35	23/2/2017	Solid fuel-Proximate analysis ,Numerical
36	24/2/2017	Ultimate analysis , Numerical
37	24/2/2017	Tutorial -:8 Numerical on Bomb Calorimeter
38	27/2/2017	Liquid fuels - Petroleum composition and refining
39	28/2/2017	Octane number of petrol, Cetane number of diesel, Power alcohol, Biodiesel

40	2/3/2017	Gaseous fuel - Composition, properties and applications of NG, Numerical of combustion
41	3/3/2017	Fuel cells- Definition, Advantages and limitations
42	3/3/2017	Tutorial-9: Numerical on Boy's Gas Calorimeter
		UNIT-5 CORROSION SCIENCE
43	6/3/2017	Introduction. Types of corrosion- Dry corrosion- mechanism,
44	7/3/2017	Pilling-bed worth rule Wet corrosion- mechanism.
	8/3/2017 to 10/3/2017	CAE-II(Unit III & IV)
45	14/3/2017	Factors influencing corrosion- Nature of metal,Nature of environment,
46	16/3/2017	Cathodic and anodic protection,
47	17/3/2017	Tutorial-10: Numericals on Proximate & Ultimate
	17/3/2017	TAE-5 Seminar(PPT)
48	17/3/2017	Use of inhibitors, Protective coatings: surface preparation
49	20/3/2017	a)Metallic coatings: Electroplating & Electro less plating.
50	21/3/2017	b) Non-metallic coatings: chemical conversion coatings.
		UNIT-6 Advances in Engineering Chemistry
51	24/3/2017	Nanomaterial: Graphite, Carbon nanotube (CNT) &

52	24/3/2017	Tutorial-11: Numerical on Proximate & Ultimate
53	27/3/2017	Fullerenes- Structure, Properties, Applications
54	30/3/2017	Lubricants: Introduction, classification of lubricants
55	31/3/2017	Liquid, semi– solid (Grease)
56	31/3/2017	Tutorial-12: Numerical on combustion of Fuel
57	6/4/2017	Biomaterial: Classification, Properties, Examples.
	7/4/2017	TAE – 2 Surprise Test
58	7/4/2017	Biosensor- Introduction, Classification, Applications.
59	7/4/2017	Smart Material: Introduction, Shape Memory Alloy and its
60	10/4/2017	Example, Advantages, Disadvantages, Applications
	11/4/2017 to 13/4/2017	CAE-III (Unit V &VI)