

TEACHING PLAN FOR THEORY

Course Instructor: Shubhangi Satdeve Class:A

Course: Engineering Chemistry		Class: F.Y. B. Tech - E [ODD TERM]
Programme: F.Y.B.Tech Engineering		Academic Year: 2018-2019
Lecture No	Scheduled Date	Topics to be covered on the scheduled date
1	30/07/2018	Syllabus Discussion, Discussion on course objective & course outcome
Unit I: Introduction		
1	30/07/2018	Impurities in water. Hardness of water & its determination by EDTA method.
2	31/07/2018	Alkalinity of water and its determination and Numerical on alkalinity and hardness
3	01/08/2018	III effects of hard water in boilers. Boiler feed water treatment -1) Internal treatment-calgon and phosphate conditioning,
4	03/08/2018	2) External treatment- a) Zeolite process & its numerical b) Ion exchange method
5	06/08/2018	Desalination of brackish water/Purification of water by Reverse osmosis and Electro dialysis.
6	07/08/2018	Green Chemistry: Introduction,
7	08/08/2018	Twelve Principles of green Chemistry
8	10/08/2018	Major uses- traditional and green path ways of synthesis of adipic acid, indigo dye.
Unit II:		

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9	13/08/2018	Type of reference electrode (calomel electrode), indicator electrode (glass electrode),
10	14/08/2018	Ion selective electrode, Half-cell reaction and complete cell reaction.
11	20/08/2018	Conductometry: Introduction, Kohlrauschs law, Conductivity cell,
12	21/08/2018	Measurement of conductance, applications-Conductometric titrations, Acid-Base Titrations, precipitation titration,
13	22/08/2018	Potentiometry: Introduction, Potentiometric titrations-differential plots.
14	24/08/2018	Applications- redox titrations Fe ²⁺ /Ce ⁴⁺ titration.
15	27/08/2018	UV/Visible spectroscopy: Beer Lambert's law, chromophore and auxochrome, types of electronic transitions
16	28/08/2018	Instrumentation and principle- block diagram of single and double beam spectrophotometer. Applications of uv-visible spectroscopy
Unit III:		
17	29/08/2018	Introduction, functionality of monomer,
18	31/08/2018	polymerization-Free radical mechanism & step growth polymerization,

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19	03/09/2018	Tm and Tg, Thermoplastic and Thermosetting polymers.
20	04/09/2018	Compounding of plastics. Preparation, properties & engineering applications of: Polyethylene (LDPE & HDPE) and Bakelite.
21	05/09/2018	Elastomers- Natural rubber-processing & vulcanization by sulphur. Synthetic rubbers-SBR.
22	07/09/2018	Specialty polymers: Engineering thermoplastics- Polycarbonate,
23	10/09/2018	Biodegradable polymers- Poly (hydroxyl butarate-hydroxyvalanate),
24	11/09/2018	Conducting polymers- Polyacetylene, Liquid Crystal polymer-Kevlar.
Unit IV:		
25	12/09/2018	Fossil Fuels: Definition, Calorific values, Determination- Bomb calorimeter,
26	14/09/2018	Numerical Boys gas calorimeter, Numerical Solid fuel-coal-Proximate analysis
27	21/09/2018	Ultimate analysis & Numerical.
28	24/09/2018	Liquid fuels-Petroleum-composition and refining.
29	25/09/2018	Octane number of petrol, Cetane number of diesel, Power alcohol, Biodiesel.

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30	26/09/2018	Gaseous fuel-Composition, properties and applications of NG, CNG & LPG,
31	28/09/2018	Combustion- Chemical reactions, Calculations for air required. Numerical.
32	01/10/2018	Fuel cell: Introduction, applications.
33	02/10/2018	Introduction. Types of corrosion- Dry corrosion- mechanism
34	03/10/2018	Pilling-bed worth rule, Wet corrosion- mechanism.
35	05/10/2018	Factors influencing corrosion- Nature of metal, ,
36	08/10/2018	Nature of environment
37	09/10/2018	Cathodic and anodic protection
38	15/10/2018	Use of inhibitors, Protective coatings: surface preparation
39	16/10/2018	a)Metallic coatings: Electroplating & Electro less plating.
40	17/10/2018	b)Non-metallic coatings: chemical conversion coatings
Unit VI:		
41	19/10/2018	Forensic Science : Introduction, Definition, Principles

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42	22/10/2018	Laws of Forensic Science
43	23/10/2018	Historical Background of Forensic Science in India
44	24/10/2018	Need of Forensic Science in present scenario
45	26/10/2018	Forensic Science Laboratories, their types and Divisions
46	29/10/2018	Forensic Examination
47	30/10/2018	Organizational set up of Forensic Science Laboratories at central and state level
48	31/10/2018	Introduction of BPR&D, NICFS, CDFD, CCMB, IITR, CDTS, NCRB