Lesson Plan

Name of the Institute:	**C. V. Raman Polytechnic, BBSR**
Department:	**Basic Science**
Semester/Division/Branch:	**1st sem/All Branches**
Subject Name with code:	**Applied Chemistry**
Total No. of Class (Required):	**60**
Faculty Name:	**Dr. Jayashree Samantray**

Class No.	Brief description of the Topic/Chapter to be taught	Remarks
1	**Unit 1: Atomic Structure, Chemical bond, Solution**	
2	□ Rutherford Model of an Atom	
3	□ Bohr's Theory	
4	□ Types of Bonding	
5	□ Electronic Configuration	
6	□ Covalent bond (H_2, F_2, HF hybridization in $BeCl_2$, BF_3, CH_4, NH_3, H_2O)	
7	□ Coordinate bond	
8	□ Hydrogen Bonding	
9	□ Metallic Bonding	
10	□ An Introduction	
11	□ The idea of Solute, Solvent, and Solution	
12	□ Methods to Express the Concentration of Solution	
13	**Unit 2: Water-** An Introduction	
14	□ Graphical presentation of Water Distribution on Earth	
15	□ Classification of Soft and Hard Water	
16	□ Salts Causing Water Hardness	
17	□ Unit of Hardness	
18	□ Causes of Hard Water	
19	□ Cause of Poor Lathering of Soap in Hard Water	
20	□ Problems Caused by the Use of Hard Water in Boiler	
21	□ Quantitative Determination of Water Hardness by ETDA Method	
22	□ Water Softening Techniques – An Introduction	
23	□ Soda Lime Process	
24	□ Zeolite Process	
25	□ Ion Exchange Process for Water Softening	
26	□ Municipal Water Treatment- An Introduction	
27	□ Screening	
28	□ Sedimentation	
29	□ Coagulation	
30	□ Filtration	

31	□ Disinfection / Sterilization	
32	□ Indian Standard Specification of Drinking Water – An Introduction	
33	□ Water for Human Consumption	
34	**Unit 3: Engineering Materials**	
35	□ Minerals and Ores	
36	□ General Principles of Metallurgy	
37	□ Extraction of Iron from Haematite ore	
38	□ Extraction of Aluminium from Bauxite	
39	Alloy- Chemical Composition, Composition Based Applications	
40	□ Portland Cement, Glasses, Refractory, Composite Materials	
41	□ Polymers	
42	□ Preparation of Thermoplastics and Thermosetting Plastics	
43	□ Vulcanization of Rubber	
44	**Unit 4: Chemistry Of Fuels And Lubricants**	
45	□ Fuel and Combustion	
46	□ Classification of Fuels	
47	□ Calorific Values (HCV and LCV)	
48	□ Calculation of HCV and LCV using Dulong's formula.	
49	□ Analysis of Coal	
50	□ Proximate Analysis of Coal (Solid Fuel)	
51	□ Fuel rating of Petrol and Diesel (Octane and Cetane Numbers)	
52	□ Chemical Composition, Calorific Values and Applications of Fuel	
53	**Unit 5 : Electro Chemistry**	
54	Electrolytes and Non Electrolytes	
55	Application of Redox Reactions in Electrochemical Cells	
56	Corrosion – An Introduction	
57	Factors influencing Rate of corrosion	
58	Internal Corrosion Preventive Measures	
59	External Corrosion Preventive Measures	
60	Revision	

Jayashree Samantray

Signature of the Faculty

Signature of the H.O.D