SCHEME OF COURSE WORK

Course Details:

Course Title	**:Chemistry**		
Course Code	**:15BC1101**	**L T P C**	**4 0 0 3**
Program:	**: B.Tech.**		
Specialization:	**:Chemical Engineering, Civil Engineering, Computer Science and Engineering & Information Technology**		
Semester	**:I**		
Prerequisites	**:---**		
Courses to which it is a prerequisite	**:----**		

Course Outcomes (COs):

1	Determination of electrode potential and principles and explanation of batteries and fuel cells with examples.
2	Explanation on corrosion and its controlling methods
3	Explain the principle, preparation and properties of plastics and rubber
4	Study of properties and purification methods of water
5	Study of the chemistry of engineering materials

Course Outcome Versus **Program Outcomes:**

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO-1	2														
CO-2	2														
CO-3	3														
CO-4	3														
CO-5	3														

S - Strongly correlated, *M - Moderately* correlated, *Blank - No correlation*

AssessmentMethods:	Assignment / Quiz / Seminar / Case Study / Mid-Test / End Exam

Teaching-Learning and Evaluation

Week	**TOPIC / CONTENTS**	**Course Outcomes**	**Sample questions**	**TEACHING-LEARNING STRATEGY**	**Assessment Method & Schedule**
1	Electrode potential ,type of cells,Determination of PH,	CO-1	Q) What is electrode potential? Derive Nernest equation for electrode potential.	▫ Lecture / Discussion ▫ Problem solving	Assignment test-I
2	Construction and working principles of batteries,	CO-1	Q) Explain Construction and working principles of lead acid battery	▫ Lecture / Discussion ▫ Problem solving	Assignment Test-I
3	Definition of corrosion-Types of corrosion	CO-2	Q) Definition of corrosion and give the mechanism of electrochemical corrosion.	▫ Lecture	Assignment Test-I Quiz-I
4	Passivity, galvanic series, factors influencing corrosion, corrosion controlling methods	CO-2	Q) what are factors influencing corrosion	▫ Lecture / Discussion	Assignment Test-I Quiz-I
5	Protective coatings	CO-2	Q) Explain the principle of electroplating of copper.	▫ Lecture / Discussion	Quiz-I Test-I
6	Polymerization, types and their mechanism, preparation and properties of polymers.	CO-3	Q) What is polymerization explain the mechanism of addition polymerization.	▫ Lecture / Discussion	Quiz-I Test-I
7	Inorganic polymers, plastics-types and compounding of rubber	CO-3	Q) Differentiate thermoplastics from thermosetting plastics. Q) Write a detailed note on compounding of rubber	▫ Lecture / Discussion	Quiz-I Test-I
8	Elastomers-natural and synthetic rubbers,preparation and properties.	CO-3	Q) Explain the preparation and properties of BUNA-S and BUNA-N rubber.	▫ Lecture / Discussion	Test-I
9	**Test 1**				
10	Introduction-hardness-types, disadvantages and their determining methods	CO-4	Q) What is hard water and explain the determination of hardness by EDTA method.	▫ Lecture / Discussion ▫ Problem solving	Assignment Test 2

11	Scale and sludge formation in boilers, caustic embitterment, Priming and foaming, municipal water treatment.	CO-4	Q) Write a short note on caustic embitterment boiler corrosion.	▫ Lecture / Discussion	Assignment Test 2
12	Desalination of brackish water, Water softening methods- lime - soda method	CO-4	Q) Explain the lime soda process for softening the hard water.	▫ Lecture / Discussion Problem solving	Assignment Test 2
13	Classification of fuels,characteristics and analysis of solid fuel.	CO-5	Q) What is calorific value and how it can be determined from Bomb calorimeter.	▫ Lecture Discussion ▫ Problem solving	Assignment Test 2 Quiz-II
14	Refining of petroleum, Cracking, octane value and cetane value	CO-5	Q) Describe the refining of petroleum.	▫ Lecture / Discussion	Quiz-II Test 2
15	Cement- Manufacture of Portland cement –setting and hardening of cement,	CO-5	Q)Write the chemical equations involved in setting and hardening of cement	▫ Lecture / Discussion	Quiz-II Test 2
16	Lubrication-types, types of lubricants , properties and their determination	CO-5	Q) what is lubrication. Explain the mechanism of lubrication	▫ Lecture / Discussion	Quiz-II Test 2
17	refractory classification and their properties	CO-5	Q) Define refractory. How they can be classified?	▫ Lecture / Discussion	Test 2
18	**Test 2**				
19/20	**END EXAM**				