

**VIKRAMA SIMHAPURI UNIVERSITY::NELLORE**  
**I YEAR OF FOUR YEAR B.TECH DEGREE COURSE**  
**(COMMON TO ALL BRANCHES)**

(With effect from the Academic Year 2010-2011)

**10CY101-Engineering Chemistry**

Hours /week : 4 Hrs  
Credits : 4

Sessional Marks : 40  
End Examination Marks : 60

**UNIT – I**

**COLLOIDS:** Types of colloidal solutions- multi molecular, macro molecular and associated colloids- preparation and properties of colloidal system- coagulation of sols- stability of colloids- protective colloids- emulsion- gels- application of colloids.

**UNIT – II**

**ELECTROCHEMISTRY:** Electrode potential- reference electrodes- hydrogen , calomel and glass electrodes- PH and its determination- Polarization- batteries- fuel cells- aluminium air battery- lead acid storage cell.

**CORROSION:** Types of corrosion – factors influencing corrosion- theories of corrosion- prevention of corrosion- cathodic protection- metallic coatings- hot dipping, spraying, cementation, cladding and electroplating.

**UNIT – III**

**WATER TREATMENT:** Introduction- effect of water on rocks and minerals- hardness of water- disadvantages of hard water- boiler feed water- scale and sludge formation in boilers- caustic embrittlement- boiler corrosion- priming and foaming –softening methods- lime sod , zeolite and ion exchange process , chemical analysis of water- hardness , alkalinity , chloride, sulphate and dissolved oxygen.

**UNIT-IV**

**FUELS AND COMBUSTION:** Introduction – classification of fuels- calorific values and its determination – bomb calorimeter – boyle’s gas calorimeter- theoretical calculations of calorific value of fuel – coal – analysis of coal- metallurgical coke – petroleum – refining of petroleum – synthetic petrol- combustion- mass analysis from volume analysis and vice-versa- analysis of fuel gas- petrochemicals.

**UNIT-V**

**HIGHPOLYMERS:** Nomenclature of polymers,-types of polymerization-plastics-classification of plastics-Moulding constituents of plastics-preparation, properties and applications of polythene, nylon, Teflon, Ureformaldehyde and Bakelite- rubbers-vulcanisation of rubber- compounding of rubber- synthetic rubbers- butyl – N,Thiocol and silicon rubbers- polymers in medicine and surgery.

**Text Books:**

1. Engineering Chemistry : PC Jain & M jain
2. Engineering Chemistry: IBK Sharma.

**Reference Books:**

- 1.Engineering Chemistry: SS Dhara
2. Physical Chemistry : Puri and Sharma
3. Physical Chemistry: BAHL & TULI