

**VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT**  
**ENGINEERING CHEMISTRY**

**SEMESTER -II**

**TEACHING SCHEME**  
**EXAMINATION SCHEME**

**L=3; P/D=2; TA=0**  
**Theory: 3 hours Marks: 100**

**PRACTICAL / DRAWING:**

**Internal evaluation Marks: 20**  
**External evaluation Marks: 30**  
**Total Marks: 50**

**A) THEORY:**

(1) Water :

Sources, impurities, hardness, estimation and units, Treatment for (i) boiler-feed water (ii) Potable water, Desalination of brackish water.

(2) Cement:

Manufacture, main constituents, setting and hardening of Portland cement, heat of hydration, RCC decays and protection.

(3) Pollution:

Types, sources, effects and control of air and water pollutants, sewage, BOD, COD, waste water treatments.

(4) Polymers:

Chain and step polymerizations, mechanisms of chain polymerizations, Resins & plastics, thermoplasts and elastomers, Moulding methods, structures and uses of PE, PP, PVC, PVA, VC-VA copolymer, PMMA, PTEE Phenoplasts, Amino resins, polyesters, nylon epoxy, silicon resins, and polyurethane, No. average molecular masses.

(5) Corrosion:

Dry and wet, their mechanisms causes and remedial measures of Galvanic, Crevice, Pitting and Stress corrosion, corrosion control, surface preparations, Zn and Sn coatings cathodic and anodic protection, inhibitors and paints.

(6) Only types and uses of:

Insulators, semi-conductors, lubricants, abrasives, adhesives, composite materials, glasses, refractories and non-ferrous alloys.

(7) Outlines of instrumental methods of Chemical analysis:

PH-metry, potentiometry, conductometry, polarography, visible spectrophotometry, and flame photometry.

**B) PRACTICAL / DRAWINGS, TUTORIAL ASSIGNMENTS:**

Based on the theory course prescribed above.

**C) REFERENCES:**

- (1) M. Jain & Jain, Engineering Chemistry, Dhanpat Rai and sons publications. (1995)
- (2) C.V. Agarwal, Chemistry of Engineering Materials, Tara Book Agency(1990)
- (3) Chatwal & Anand, Instrumental Methods of Chemical Analysis (1990)