

GUJARAT TECHNOLOGICAL UNIVERSITY
B.E. SEMESTER : 3
ENVIRONMENTAL SCIENCE & TECHNOLOGY

Subject name: **CHEMISTRY FOR ENVIRONMENTAL SCIENCE & TECHNOLOGY**

Sr. No.	Course contents
01.	Importance of ecology and environment: Segments of Environment- lithosphere, hydrosphere, atmosphere, biosphere. Various Ecosystems. Nutrition and energy in ecosystem, eco web. Types and important of forests. Sustainable developments- need and significance in environmental management.
02.	Distilled and demineralized waters: Methods of preparing distilled waters, comparison of methods; high purity waters, tests of distilled and dematerialized waters; handling standard methods.
03	Preparation of standard solutions: Relationship of atomic, molecular, formula and equivalent weights and solutions, requirements of primary standards, stock solutions and their standardization, characteristics of common laboratory chemicals. Qualitative analysis of radicals: Quantitative tests for identification, characteristics of common laboratory chemical
04	Quantitative analysis: Volumetric and gravimetric analysis, estimation of purity of chemicals, analysis of items cements, alums and coagulants, neutralization, complexometry, redox titrations, pH metric and conductometric titrations.
05.	Instrumental Analysis: Conductivity meter, pH meter, Turbidity meters.
06.	The understanding and measurements of SO _x , NO _x , TOC, SPM, RSPM etc.
07.	The measurement of parameters of water/wastewater i.e. Temperature, pH, DO, colour, odor, solids, nitrate, TKN, chloride, sodium, potassium, hardness, chlorophyll-a, phosphate, sulfate, and various metals etc.

Reference Books:

- 1) Environmental engineering and Science, Masters G.M.; Prentice Hall of India, New Delhi, 3rd Ed.,1994.
- 2) Environmental Chemistry, Kudesia V.P.; Pragati Prakashan, 2000.
- 3) Environmental Pollution Control and Engineering, Rao C.S., New Age International (P) Limited, 2nd Ed., 1991.
- 4) Environmental Engineering, Kiely G., McGraw Hill Book Company, 1997.
- 5) Environmental Chemistry, De A. K.; New Age International (P) Limited, 7th Ed.,2009.
- 6) Basics Environmental Engineering, Gaur, R. C.; New Age International (P) Limited, 2008.
- 7) Environmental Chemistry ,Sawyer & McCarty, Mc Graw Hill 5th Ed., 2002
- 8) Environmental Chemistry, Samir Banerji, PHI, 2nd Ed, 2001