

## **CE311A: Environmental Quality and Pollution**

**3-0-3-0 [12]**

### **Course Contents:**

Introduction and Scope General concept of Environmental Engineering; Ecology and Environment; Impact of pollution on the environment; Environmental Quality Parameters; Various pollutants in different media; Introduction to Environmental Standards; Brief mention of development of environmental standards; Aquatic Chemistry Acid-base chemistry, alkalinity, metal complexation, precipitation, etc.; Mass Transfer Inter-media transfer of pollutants e.g. gas-liquid, solid-liquid transfers; Particles in Environment Formation, settling deposition, flocculation; attachment; Pollutant Transport; Mechanisms of Pollutant Transport; Air Pollution Pollutant sources, effects, meteorology as applied to air pollution, air pollution control; Environmental Modeling Pollutant transport equations; Development of analytical/ predictive environmental models for various environmental media; Solid and Hazardous Waste Management; Definition; Control measures; Disposal of Wastes, Management; Environmental Impact Assessment; Concept and importance; Various steps in a EIA study; assessment of impacts; mitigation of adverse impacts; Environmental management plan.

### **Laboratory:**

Introduction to Environmental Engineering Laboratory Tour of the laboratory; Familiarization with glassware and instruments etc.; Measurement of Water and Wastewater Quality Parameters; Alkalinity, pH, solids, anions, cations, BOD, COD, TKN, P, microbial quality, etc.; Demonstration of Air Pollution; Measurement Instrumentation; Ambient particle and gaseous; samplers, stack monitoring, meteorology, etc.; Demonstration of Advanced Analytical Instrumentation; Gas and liquid chromatographs, measurement of metals, organic carbon analyzers, and other advanced instruments in Environmental Engineering laboratory