



Indus Institute of Technology & Engineering
Environmental Science and Environmental Engineering
Syllabus for IURAT

(Indus University Research Aptitude Test)

Population Growth, World and Indian scenario, Population and Environmental Degradation, Malthusian theory, Optimum theory, Population explosion - Causes, Effects and Control. Urbanization: Urban population growth and Environmental problems.

Definition and Components of Environment, Relationship between the different components of Environment, Man and Environment relationship, Impact of technology on Environment, Environmental Degradation, Multidisciplinary nature of the Environment studies, its scope and importance in the present day Education System.

Environmental Impact Assessment & Legislation: Sustainable Development, EIA as a four step activity, Need for EIA, EIA Notification 2006 & its requirement, EPA 1986, Water Act 1974, Air Act 1986 Hazardous Waste Management Rules, Environmental Audit.

Water requirements: Quality standards, Hydraulic design of sewer, basic unit processes and operations for water treatment, Design of Facilities for Physical, Chemical Treatment of Waste Water. Drinking water standards, water requirements, basic unit operations and unit processes for surface water treatment, Sewage and sewerage treatment, quantity and characteristics of wastewater. Effluent discharge standards. Domestic wastewater treatment: quantity of characteristics of domestic wastewater, primary and secondary treatment, Unit operations and unit processes of domestic wastewater.

Gravimetric analysis, titrimetric analysis and instrumental analysis: Significance of pH, Solids, Acidity, Alkalinity, COD, DO, BOD, Hardness, Sulphate, Fluoride, Chloride, Turbidity, spectrophotometry, colorimetry, chromatography.

Air pollution: - Sources & effects of air pollutants, criteria air pollutants, effects of meteorological parameters on ambient air quality, thermal inversion, control of particulates, Ambient Air Quality Standards & limits.

Noise Pollution: Noise as a pollutant, measurement of noise, units of expressions, effects of noise, permissible limits. Environmental Impact Assessment & Legislation: Sustainable Development, EIA as a four step activity, Need for EIA, EIA Notification 2006& its requirement, EPA 1986, Water Act 1974, Air Act 1986 Hazardous Waste Management Rules, Environmental Audit.

Municipal Solid Wastes: collection and transportation of solid wastes. Solid & Hazardous Waste Management: Definition of hazardous waste, the magnitude of the problem, Risk assessment, Environmental legislation, Characterization and site assessment, Waste minimization and resource recovery, Physico-chemical treatment, Transportation of hazardous waste, Ground water contamination, Landfill disposal.