

**PCI8J001**

**ENVIRONMENTAL GEOTECHNIQUE**

**Module- I**

Introduction: Scope, importance, waste generation, subsurface contamination, Geosynthetics: Types, manufacturing functions, applications and economics.

**Module- II**

Forms of waste and their properties: Municipal waste, mineral waste, industrial waste, hazardous waste, index properties, strength, compressibility and permeability of municipal and mineral waste.

**Module- III**

Selection of waste disposal sites, factors affecting site selection, siting criteria and siting rating method, Landfills for municipal and hazardous waste: components of land fills, layouts, daily cells, base lining systems, stability of slopes, constructing aspects.

**Module- IV**

Ash ponds and mine tailing impoundments: slurry deposition of mine tailing and coal ash in impoundments, layouts, components, design of tailing dam/ash dykes, slope stability. Remediation: Principle of remediation: Planning, source control, soil gas extraction, soil washing, and bioremediation.

**Reference books:**

1. Geotechnology of waste management, I. S. Oweis and R. P. Khera, Butterwarths, London.
2. Engineering with geosynthetics, Ed. G. V. Rao and G.V.S.S. Raju, Tata McGraw Hill
3. Geotechnical practice for waste disposal, D. E. Daniel, Chapman and Hall, London.