



## **GEOENVIRONMENTAL ENGINEERING (ENVIRONMENTAL GEOTECHNOLOGY); LANDFILLS, SLURRY PONDS & CONTAMINATED SITES**



**PROF. MANOJ DUTTA**  
Department of Civil Engineering  
IIT Delhi

**TYPE OF COURSE** : Rerun| Elective | UG/PG **COURSE DURATION** : 12 weeks (30 Jul'18 - 19 Oct'18)

**INTENDED AUDIENCE** : B.E/B.Tech, M.E/M.Tech, M.S **EXAM DATE** : 28 Oct 2018

**PRE-REQUISITES** : 2nd year BE level course on Soil Mechanics or Environmental Science and Engineering.

**INDUSTRIES APPLICABLE TO** : Geotechnical Consultants, Environmental Consultants, Solid Waste Management Consultants, Pollution Control Boards and Regulatory Authorities, Central & State Ministries of Environment, Central & State Ministries of Urban Development, Municipal Corporations and Urban Local Bodies, Manufacturing Industries & Industrial Development Corporations, Waste Management Industries, Operators and NGOs, Ground Water & Mining Authorities and Industries

### **COURSE OUTLINE :**

The courses discusses the following in detail:

- Concepts and principles of Geoenvironmental Engineering.
- Geotechnical aspects of planning and design of MSW and Hazardous waste Landfills
- Geotechnical aspects of planning and design of slurry ponds - ash ponds and tailing ponds.
- Geotechnical aspects of detection & monitoring of subsurface contamination and control & remediation of contaminated sites.
- Rehabilitation of waste dumps and geotechnical re-use of waste.

### **ABOUT INSTRUCTOR :**

Prof. Manoj Datta is currently Professor in Department of Civil Engineering at IIT Delhi. His areas of research include soil mechanics, geotechnical and foundation engineering, geoenvironmental engineering, landfill engineering, ground engineering, stability of slopes, earth dams and offshore soil mechanics.

### **COURSE PLAN :**

**Week 01** : Introduction, Sources & Impact of Contamination and Soil-Waste Interaction

**Week 02** : Concepts of Integrated SWM & Geoenvironmental Engineering

**Week 03** : Principles and Planning of Landfills

**Week 04** : Liners for Landfills

**Week 05** : Landfill Covers, Generation and Control of Leachate and Gas from Landfills

**Week 06** : Stability of Slopes and Settlement of Landfills

**Week 07** : Solved examples, Monitoring and Detection of Subsurface Contamination

**Week 08** : Costs, Construction Aspects and Site Selection of Landfills

**Week 09** : Control, Rehabilitation of Old Dumps and Contaminated Sites

**Week 10** : Slurry Deposited Waste and their Geotechnical Properties

**Week 11** : Planning & Design, Incremental Raisings and Failures of Slurry Ponds

**Week 12** : Environmental Control Measures at Slurry Ponds, Geotechnical Reuse of Waste, End Review