

**Course Name:**

Site Investigation and Field Monitoring

**Course Number:**

20405

**Credit:**

3

**Course Content (outline):**

1. Importance of Case Studies and Experience Recording in Geotechnical Engineering
2. Origins of Rocks and Soils, Natural Processes on Earth and Landforms
3. Terrain Analysis Based on Aerial Photogrammetry and Satellite Imagery
4. Geophysical Studies
5. Site Investigation Planning
6. Drilling Technology and Sampling in Geotechnics
7. In-Situ Tests and Interpreting of their Results: SPT, CPT, PLT, VST, PMT, SBPM, DMT, SPLT
8. Measuring In-Situ Stresses in Soils and Rocks
9. Measuring Pore Water Pressure, Soil Permeability, and Water Table
10. Geotechnical Instrumentation for Field Monitoring (Stress, Strain, Load, Displacement)
11. Identification and Measuring Soil Contaminants

**References:**

- Leggett, R.F., (1962), "Geology and Engineering", McGraw Hill
- Hunt, R. E., (1984), "Geotechnical Engineering Investigation Manual", McGraw Hill
- Hvorslev, M.J., (1949), "Sub-surface Exploration and Sampling of Soils for Civil Engineering Purposes", Waterways Experimental Station, Vicksburg
- Clayton, C.R.I., Simons, N.E., and Mathews, M.C. (1982), "Site Investigation", Granada
- Duncliff, J., (1994), "Geotechnical Instrumentation for Monitoring Field Performance", John Wiley
- Meigh, A.C. (1987), "Cone penetration testing, methods and Interpretation", Construction Industry Research Information Association
- Lunne, T., Robertson, P.K., Powell, J.J., (1997), Cone Penetration Testing in Geotechnical Practice, E & FN spon
- U.S. Army Corps of Engineers (1995), "Geophysical Explorations for Engineering and Environmental Investigations", EM1110-1-1802
- Marchetti, S., Monaco, P., Tonani, G., Calabrese, M. (2001), "the Flat Dilatometer Test (DMT) in soil Investigations", A Report by the ISSMGE Committee TC16
- Look, B. (2007), "Handbook of Geotechnical Investigation and Design Tables", Taylor & Francis

- Hannah, T.H. (1985),“Field Instrumentation”, Geotechnical Engineering Transtech. Publication
- U.S. Department of the Interior, Bureau of Reclamation (1998), Earth Manual
- CIRIA (2007), The Rock Manual (2<sup>nd</sup> Edition)