

COURSE CONTENT (TENTATIVE)

Statistical Techniques

1. **Probability:** Probability Distribution and Sampling Theory.
2. **Hypothesis Testing;** Analysis of Variance
3. **Bivariate and Multivariate Regression Analysis:** Curvilinear, Logit and Probit; Multiple Regression.
4. **Multi-criteria Decision Making Techniques:** Matrix Algebra, Eigen Vector, , Principal Component Analysis and Factor Analysis, Input Output Analysis; Multiple Discriminant Analysis, Neural Network Analysis, Analytical Hierarchical Process, Linear Programming
5. **Time Series Analysis-** basics
6. **Spatial Autocorrelation** (Moran's I and Geary's S)
7. Basic Idea **on R, SPSS and MATLAB** software

Remote Sensing and GIS

1. **Hydrological analysis** using DEM
2. **Suitable site selection** analysis
3. Understanding the tools in **Erdas Imagine**
4. Techniques of **landcover classification** in congested urban areas
5. **Modelling geographical phenomena** in time and space contexts
6. Other **theme based use** of RS and GIS tools

Data Acquisition Techniques

1. Principles and hands-on training in **Total Station**
2. Principles and hands-on training in **DGPS**
3. Measurements and modelling of flow using flume (**Stream Table**) and other hydrological instruments
4. Laboratory methods for **water quality assessment**