Semester II

205: Tools and Techniques in Geoinformatics

Unit 1: Quantitative Techniques for Spatial Analysis using SPSS   **20 lectures**

1.1 Inferential statistics: Introduction; Hypothesis Testing - Chi square test, T-testapplications
1.2 Analysis of variance (ANOVA)
1.3 Time Series Analysis- growth and decline- index numbers- logarithmic scale- trendline by least square method

Unit 2: Quantitative Techniques for Spatial Analysis using SPSS   **20 lectures**

2.1 Correlation: Types of correlation; Methods of correlation- Spearman's rank correlation and Karl Pearson D s coefficient of correlation; PartialCorrelation

2.2 Regression: Introduction; Dependent and independent variables; scatter-gramregression lines and residuals; construction of regression lines; least square method,Regression residuals: mapping and interpretation

Unit 3: Basics of Geo informatics   **20 lectures**

3.1 Data acquisition from various sources, georeferencig, digitization

3.2 Data joining, creation of thematic maps, map layout

3.3 Vector layer operations- geoprocessing, geometrical, analysis tools

3.4 Raster layer operations- calculation, analysis, extraction, conversion

Reference Books

1. Hilton, P. et.al (2012): SPSS Explained, Rutledge, London.

2. Berry, B.J.L. and Marble, D.F. (1968): Spatial Analysis   A Reader in Statistical Geography, Prentice Hall, Englewood Cliffs, New Jersey.

3. Levin, J. (1973): Elementary Statistics in Social Research, Harper and Row, New York

4. Yeates, W.M.(1974): An Introduction to Quantative Analysis in Human Geography, McGraw Hill, New York.

5. Norcliff, G.B.(1982):Inferential Statistics for Geographers, Hutchinson, London.

6. Cressie, N.(1991): Statistics for Spatial Data, John Wiley and Sons, New York

7. Ganesh, A.(2006): GPS Principles and Applications, Satish Series Publishing Houses

8. Rogerson, P.A.(2010): (3rdEd,) Statistical Methods for Geography, a Students Guide, Sage