Subject Code : P8AGE3

COMPUTER APPLICATIONS, GIS AND GEO STATISTICS

Unit 1:

Computer fundamentals - Principles - Historical development - general characteristics - construction and organization of computers; Classification of computers – Computer hardware – input and output devices – storage devices – printers and plotters; Binary arithmetic and coding; Computer software – flow chart and algorithm; Computer language – machine language, assembly language and high level language; Operating System – MS-DOS and Windows.

Unit 2:

Programming language: Basic– Structure of programme – character set, constant, variables and operators – arithmetic expressions – library functions – classification of programme statements - input and output statements, control statements – writing programme in basic statistical operation. **C –** Structure of programme – character set, constant, variables and operators – arithmetic expressions – library functions – classification of programme statements - input and output statements, control statements – writing basic and C programmes in basic statistical operation.

Unit 3:

MS-Office: MS Word – word processing – cursor navigation - functions – main menu and sub menu – tool bars – documents creating – editing, formatting and printing. **MS Excel –** Electronic spread sheet – navigation - main menu and sub menu – tool bars – functions – worksheet and chart - database and data processing.
MS Power point – operations – main menu and sub menu – tool bars – slides creating – editing, templates - formatting and presentation.

Unit 4:

Geographical Information System: Introduction – definition of GIS, historical development; Basic principles – concepts and usefulness of GIS; Component of GIS – Hardware, software modules and user; Spatial data in GIS – vector and raster data – spatial data structure and data modeling – data sources; Projection and registration; Attribute data management - Data input and editing – Data analysis and manipulation in GIS; Surface modeling – TIN and DTM; Out put from GIS; Global Positioning System – concepts – segments – its application; Application of GIS in Geological studies and natural resource management.

Unit 5:

Statistics: Concepts – Definition - Merits and limitation – Tabular and diagrammatic illustration: Bar diagram and pie diagram – histogram and frequency polyson – ogives; Measures of central tendency - AM , Median, Mode,

Dispersion – standard deviation – skewness, kurtosis – Karl Peason's coefficient of Skewness; Correlation and Regression-Concepts, Karl persion's coefficient of correlation – Rank correlation Regression, lines of regression; Probability – Meaning and Uses Addition and Multiplication theorems – Baysian rule - A brief note on statistical software.
Distribution of sample variance and chi square distribution; probaility; testingnormal distribution; students 't' test, 'f' test; confidence interval, analysis; calculation of varience- covariance, simple linear models; cluster analysis

TEXT BOOKS

1. John C.Davis - 1973 - Statistics and Data Analysis in Geology, John Wiley & Sons.
2. Krumbein and Graybill 1965 - An introduction to Statistical methods in Geology, Mc Graw Hill.
3. Burrough, P.A.-1986- Principles of Geographical information system for land resource assessment.

REFERENCE BOOKS

1. Rober L. Miller and James Stevenkahn -1962, Statistical analysis in the Geological Sciences, John Wiley & sons, Inc.