Online add-on course on Remote Sensing & GIS with Application of Advanced Statistical Software (2022-23)

Unit 1: 2 Hours

Introduction to Basic Concept of GIS (Theory)

A) What is GIS
B) Component of GIS ,
C) Data in GIS
D) Concept of Georeferencing and its Component

Unit 2: 6 Hours

Basic of Mapping (Practical)

A) Georeferencing of toposheet, georeferencing from vector data
B) Preparation of shapefile (Line, point, and Polygon) and digitization
C) Data attachment and thematic mapping
D) Layout preparation

Unit 3: 2 Hours

Introduction to Remote Sensing and Satellite Images (Theory)

A) Basic concept of Remote Sensing
B) Concept and types of satellite images
C) Concept and types of resolution
D) Concept of Digital Elevation Model

Unit 4: 10 Hours

Satellite Image Processing (Practical)

A) Satellite image download (Landsat and Sentinel)
B) Pre-processing of satellite image
C) Image masking and composite bands
D) Processing and post-processing of satellite images (Kappa statistics)
E) Extraction of Rivers from Digital Elevation Model
F) Preparation of relative relief, absolute relief, and dissection index

Unit 5: 4 Hours

Introduction to Multivariate Statistics (Theory)

A) Concept of multivariate statistic
B) Concept of Principal Component Analysis
C) Concept of multi-linear regression

Unit 6: 8 Hours

Application of Multivariate Statistics along with GIS (Practical)

A) Collection and preparation of data from map for PCA3
B) Analysis of PCA

C) Attachment of result in GIS
D) Mapping of PCA

Continuous Internal Assessment (CIA)-1

Concept on GIS and Thematic Mapping: 2 Hours

A) 10 Multiple choice questions of 10 marks
B) Preparation of project of 10 marks

Continuous Internal Assessment (CIA)-2

Concept of satellite images and satellite image processing: 2 Hours

A) 10 Multiple choice questions of 10 marks
B) Preparation of project of 10 marks

Continuous Internal Assessment (CIA)-3

Concept of Multivariate Statistics and its Coordination with GIS: 2 Hours

A) 10 Multiple choice questions of 10 marks
B) Preparation of project of 10 marks

Unit 6:1 Hour

Professional Scope & Concluding Notes

The professional scope of the course extends to both public and private sectors, including government agencies, environmental organizations, consulting firms, research institutions, and technology companies. Graduates with skills in GIS and spatial statistics are in demand due to the growing reliance on spatial data analysis for evidence-based decision-making across diverse fields.

Certificates

60% attendance and 35% marks in the assignment are mandatory to get the certificate.

HEAD
DEPARTMENT OF GEOGRAPHY
HIRALAL BHAKAT COLLEGE
NALHATI, BIRBHUM

Principal
Hiralal Bhakat College
Nalhati, Birbhum

Estd-1986
W.B