CERTIFICATE COURSE SYLLABUS

DEPARTMENT OF GEOGRAPHY

MORIGAON COLLEGE

PERIOD OF TIME: 22/02/2023 -06/04/2023

REMOTE SENING, GIS AND GPS

(THEORY)

(Total THEORY Class 10)

(Total Practical class 20)

Total Credit =2

Course Outcomes:

The primary goals of this Certificate course syllabus are: -

1. Explore mapped data.
2. Relate GIS with Remote Sensing Technology.
3. Analyze spatial data, using GIS analysis tools.
4. Develop and manage of Geodatabased.
5. Create maps, images and communicates spatial and non-spatial data in a meaningful way.

Students practice competencies from the geospatial technology cemetery model. Workplace competencies are strengthened as students apply the analytical and evaluative tools to GIS mapping.

UNIT –I: Basics of Remote Sensing (3classes)

i. Introduction, Significance and Limitation of Remote sensing
ii. Application of Remote Sensing

UNIT-II: Geographic Information System (GIS) (5 classes)

i. Basis of GIS; Component, Functions of GIS, Advantage, Limitation and Application of GIS
ii. Data type and Structure of GIS; Spatial and Non – Spatial data and DBMS
iii. Spatial Analysis Techniques of GIS

UNIT-III: Fundamentals of GPS (2 class)

i. GPS; Introduction, Component and Function of GPS/DGPS

PRACTICALS (Lab Works)

Exercise -1: Collection of Satellite Imagery, Collection of Spatial and Non-Spatial data

Exercise -2: Data Organization (Location, Attribute, Consistency and Scale)

Exercise -3: Georeferencing and Digitization of Toposheet and Geometric Correction of Satellite Imageries

Exercise -4: Data layer Creation; Vector data (point, line, and polygon) and layer Extract from Google Earth

Exercise -5: Display, Analysis and Interpretation of Image

Exercise -6: Attribute Data input and their Thematic Representation (Colour, Bar, Pie, Dot etc.)

Exercise -7: Mosaic and Sub setting/clip area of interest from Satellite Imagery

Exercise -8: Performing DIP technique; Image Enhancement, Filtering, Image Transformation

Exercise -9: Creation of DEM and TIN surface from Vector and Raster data and Buffering

Exercise -10: Identification of different features using different Indices (NDVI, NDWI, NDBI, MNDWI, DVI, SAVI, EVI, RVI, and TVI)

Exercise -11: Interpretation of Thermal Image and Creation a Land Surface Temperature and Isotherms

Exercise -12: Computation of Photo Scales and Height Measurement of Aerial Photography

Exercise -13: GPS data collection, Input and Plotting in Software and Mapping