

Online Certificate Course in Remote Sensing and GIS (OCC-RSG)

Jointly Organized by: Department of Geography, Hiralal Bhakat College & Centre for Environmental Research Education and Development, Hariharpur Friends of Environment

COURSE SYLLABUS & TIMINGS

Week	Class and Date	Topics	Sub Topics	Time
Week 1	Class 1 Saturday	PHYSICS OF REMOTE SENSING	Definition, Concept and Principles	2 hrs
	Class 2 Sunday	PHYSICS OF REMOTE SENSING	Orbital Characteristics of Satellite-Kepler's law of Planetary motion, EMR and its Characteristics	2 hrs
Week 2	Class 3 Saturday	PHYSICS OF REMOTE SENSING	Wavelength Regions and their significance, Interaction of EMR with earth surface features and atmosphere, Spectral signatures	2 hrs
	Class 4 Sunday	EO PLATFORMS AND SENSORS	Active and Passive, classification of platforms based on position-Space borne, Air borne; Classification on the basis of Bands-Panchromatic, Multispectral, Hyper spectral;	2 hrs
Assignment 1				5 hrs
Week 3	Class 5 Saturday	EO PLATFORMS AND SENSORS	Sensor Resolution; Sensors- Thermal, Optical, SAR; Weather and Communication satellites, Resolution types	2 hrs
	Class 6 Sunday	VISUAL IMAGE INTERPRETATION	Elements of Visual Image Interpretation, Interpretation keys	2 hrs
Week 4	Class 7 Saturday	VISUAL IMAGE INTERPRETATION	Generation of Thematic Maps, Examples of Visual image interpretation with sample images	2 hr
	Class 8 Sunday	DIGITAL IMAGE PROCESSING	Introduction; Filters; Detectors; Scanning techniques- Across track and along track; Thermal remote sensing- Blackbody Radiation, Thermal imaging;	2 hrs
Assignment 2				5 hrs
Week 5	Class 9 Saturday	DIGITAL IMAGE PROCESSING	Pre-processing (Radiometric and Geometric correction), Image Enhancement, Image Transformation, Image Classification (Unsupervised and Supervised), and Accuracy assessment	2 hrs
	Class 10 Sunday	GPS and GNSS	Satellite based positioning system, working principle of GPS, Errors in GPS, Positioning method	2 hrs
Week 6	Class 11 Saturday	GPS and GNSS	GPS receivers, Application of GNSS	2 hrs
	Class 12 Sunday	GIS	Introduction, GIS data sources, GIS components, Spatial and attribute data, GIS data formats (shape file, grid, geodatabase, dxf, geotiff, Coverage, dwg, GML), Attribute types (nominal, ordinal, interval, ratio);	3 hrs

September, 2021

© Department of Geography of Hiralal Bhakat College and Centre for Environmental Research, Education and Development (CERED) of Friends of Environment Organization.

All rights reserved. No part of this work should be reproduced in any form, by mimeograph or any other means, without permission from Hiralal Bhakat College and Hariharpur Friends of Environment Organization.

Online Certificate Course in Remote Sensing and GIS (OCC-RSG)

Jointly Organized by: Department of Geography, Hiralal Bhakat College & Centre for Environmental Research Education and Development, Hariharpur Friends of Environment

COURSE SYLLABUS & TIMINGS

Assignment 3				5 hrs
Week 7	Class 13 Saturday	GIS	Spatial Data Models (Raster and Vector), Digitizing, Editing and structuring map data, Topology, Map overlay, spaghetti, Buffering analysis, spatial join;	3 hrs
	Class 14 Sunday	APPLICATION OF REMOTE SENSING, GIS & GPS	Land cover and Land Use, Agricultural Sector, Forestry, Hydrology, Mapping, Oceans and Coastal Monitoring	2 hrs
Week 8	Class 15 Saturday	PRACTICAL	About Q-GIS Geo referencing of raster image	3 hrs
	Class 16 Sunday	PRACTICAL	Vector data generation Digitization Editing of Vector Data	3 hrs
Assignment 4				5 hrs
Week 9	Class 17 Saturday	PRACTICAL	Data attachment, Thematic mapping, Download Process of Satellite images and DEM	3 hrs
	Class 18 Sunday	PRACTICAL	Layout preparation , Principles of IDW, Preparation of IDW Maps, Preparation of Contour from IDW	3 hrs
Week 10	Class 19 Saturday	PRACTICAL	Extraction of Drainage from DEM, Satellite image Pre-processing	3 hrs
	Class 20 Sunday	PRACTICAL	satellite image processing and Post Processing,	3 hrs
Assignment 5				5 hrs
Week 11	Class 21 Saturday	PRACTICAL	Remote sensing indices like NDVI, NDWI, NDBI, Preparation of contour mapping from google map, Preparation of DEM Slope map, aspect, hillshade from DEM	3 hrs
	Class 22 Sunday	PRACTICAL	Buffering, Overlay Analysis with AHP Model, MIF Model	3 hrs
Week 12	Class 23 Saturday	PRACTICAL	Extraction of land surface temperature	3 hrs
	Class 24 Sunday	PRACTICAL	Conversion of different types of data sets, Prediction map using ANN model	3 hrs
Assignment 6				5 hrs

September, 2021

© Department of Geography of Hiralal Bhakat College and Centre for Environmental Research, Education and Development (CERED) of Friends of Environment Organization.

All rights reserved. No part of this work should be reproduced in any form, by mimeograph or any other means, without permission from Hiralal Bhakat College and Hariharpur Friends of Environment Organization.