Course Type	Course Code	Name of the Course	L	T	P	Credits
DP	NESC512	Environmental Remote Sensing and GIS Practical	0	0	3	1.5

Course Objectives
Hands on training on Remote Sensing and GIS applications.

Overall Learning Outcomes
Upon successful completion of this course, students will be able to: • Learn to use Remote Sensing and GIS data handling. • Learn the application of RS & GIS for practical environmental problem solving.

Unit No.	Topics to be covered	Practical Hr (P)	Learning outcomes
I	Operational introduction to RS & GIS Software; Concept of Database Management System in GIS	3	Students will have a preliminary idea of working in RS & GIS data and useful software functions.
II	Georeferencing and Projection with Toposheet and Satellite Imagery	3	Students will learn how to associate geographical signature to a ordinary image data or even hardcopy data and how to operate those data in a geographical space.
III	Raster and Vector Data operations	3	Students will learn the basics of satellite image correction operation, raster and vector data handling.
IV	Vector Data Operation using Geoprocessing Tools	3	Students will learn how to integrate and disintegrate vector data for practical problem solving in GIS.
V	Image Correction, Enhancement, Mosaic and Subset.	3	Students will learn the intermediate level operation of satellite images.
VI	Image Classification and Accuracy Assessment.	3	Students will learn the advanced level operation of satellite image for feature extraction.
VII	Analysis of Digital Elevation Model (Slope and Aspect Map Generation).	3	Students will learn basic operations of Digital Elevation Model (DEM).
VIII	Watershed Delineation with Hydrology Tool.	3	Students will learn to use DEM for hydrological feature extraction.
IX	RS & GIS based suitability analysis.	3	Students will learn to integrate various remote sensing data for GIS based suitability analysis.
X	RS & GIS based risk mapping.	3	Students will learn to map the environmental risk andvulnerability.
XI	RS & GIS based geostatistical analysis.	3	Students will learn to use geostatistical analysis in GIS environment.
XII	Project: Overlay Analysis	3	Students will learn to apply the overlay analysis tool for practical application
XIII	Practice & Review	6	To enhance the knowledge and assess the progress.
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Reference book:

1. Remote Sensing & GIS - by Basudeb Bhatta , Oxford University Press India; 3rd edition (27 January 2021)
2. Introduction To Geographic Information Systems- Kang Tsung Chang (2019, Mc Graw Hill) Libgen.lc.