GEO802:BASICS OF GIS AND REMOTE SENSING

L:3 T:0 P:0 Credits:3

Course Outcomes: Through this course students should be able to

- comprehend the basic principles of Remote Sensing
- understand and apply the methods and techniques of GIS and GPS
- comprehend and explain the areas of application of Remote Sensing and GIS

Unit I

Introduction to remote sensing : historical development of remote sensing, types of remote sensing, sensors used in remote sensing, geographical uses of remote sensing data

Unit II

Basic principles of remote sensing : electromagnetic energy, interaction mechanism with atmosphere and earth surfaces, photography vs. image, concept of resolution, spectral responses of earth surface features, visual interpretation of satellite images

Unit III

Photogrammetry and image interpretation : historical developments of photogrammetry, fundamentals of photogrammetry and airphoto interpretation, basic elements of overlap and sidelap, role of photogrammetry in surveying and mapping

Unit IV

Applications of remote sensing : applications of remote sensing for landuse/landcover mapping and change detection, environmental studies, urban, hazard and disaster, water resources, agriculture etc

Unit V

Introduction to GIS : definition and applications, components and elements of GIS, development of GIS technology, geographic objects: point, line and area, analog and digital maps, representation of geographic data-base

Unit VI

Data input and fundamentals of GPS : nature of geographic data-spatial and attribute data, concept of vector and raster data, introduction and uses of GPS, importance and significance of GPS

Text Books:

1. TEXT BOOK OF REMOTE SENSING AND GEOGRAPHICAL INFORMATION SYSTEM by M. ANJI REDDY, BS PUBLICATIONS

References:

1. REMOTE SENSING OF THE ENVIRONMENT : AN EARTH RESOURCE PERSPECTIVE by JOHN R. JENSEN, PEARSONNo

2. REMOTE SENSING AND IMAGE INTERPRETATION by RALPH W. KIEFER, THOMAS LILLESAND, WILEYNo

3. PRINCIPLES OF GEOGRAPHIC INFORMATION SYSTEMS by PETER BURROUGH AND RACHAEL MCDONNELL, OXFORD UNIVERSITY PRESSNo

References:

4. REMOTE SENSING AND GIS by BASUDEB BHATTA, OXFORD UNIVERSITY PRESSNo

5. GEOGRAPHIC INFORMATION SYSTEMS AND SCIENCE by DAVID J. MAGUIRE, DAVID WILLIAM RHIND, MICHAEL FRANK GOODCHILD, AND PAUL LONGLEY, WILEYNo