

# **AMEV21 GIS FOR ENVIRONMENTAL ENGINEERING**

## **UNIT-1 FUNDAMENTALS OF REMOTE SENSING**

- 1.1 Introduction to remote sensing- Principles of Electro- Magnetic Radiation
- 1.2 Energy /Matter interaction with Atmosphere and land surface-
- 1.3 Spectral reflectance of earth materials and Vegetation – Data products.

## **UNIT-2 AERIAL PHOTOGRAPHY AND SATELLITE REMOTE SENSING**

- 2.1 Aerial Photography- Photogrammetry and Visual Image Interpretation.
- 2.2 Various satellites in orbit and their sensors- Resolutions
- 2.3 Multispectral Remote Sensing system (MSS) and Design
- 2.4 VISIBLE- NIR remote sensing- Thermal IR Radiation properties, systems and application
- 2.5 Microwave and LIDAR remote sensing- Principles and applications.

## **UNIT-3 DATA ANALYSIS AND GIS**

- 3.1 Data Analysis- Visual interpretation and digital image processing- Classification.
- 3.2 Introduction to GIS, concepts and data base structure, various GIS software.

## **UNIT-4 REMOTE SENSING AND GIS APPLICATIONS**

- 4.1 Applications of Remote sensing and GIS
- 4.2 Management and Monitoring of Land, air, water and pollution studies
- 4.3 Conservation of resources- coastal zone Management- Limitations.

## **UNIT V LABORATORY PRACTICES**

- 5.1 Data sources- Visual interpretation - digital image processing
- 5.2 Introduction to ENVI image processing Software- GIS / Data Analysis in ARC GIS.

### **Reference Books:**

1. Lintz, J.and Simonet, Remote Sensing of Environment, Addison Wesley Publishing Company, 1--4.
2. Burroughs P.A, Principles of Geographical Information System, Oxford University Press, 1--8.