Subject Code : NN416B

REMOTE SENSING

Unit I: CONCEPTS AND FOUNDATIONS

Introduction – Energy sources – Radiation Principles-Energy interactions in the atmosphere and with Earth surface features-Data acquisition and Interpretation - Reference data - an ideal remote sensing system - characteristics of real remote sensing systems.

Unit II: REMOTE SENSING PLATFORMS

Aircraft-Ballons-Earth resource satellites-Indian Remote Sensing (IRS) Satellite – INSAT - Geosynchronous earth orbit – Very high Resolution Radiation (VHRR) method-Space borne –satellite – Low earth orbit.

Unit III: SENSING METHODS

Wavelength selection-photographic -Thermal –Multi-spectral scanning – Microwave-surface-Scattrering techniques -emission techniques-scattering techniques –RADAR remote sensing –aircraft radar-geometry of radar images –satellite radar system-radar return and image signature-LIDAR (laser based remote sensing)

Unit IV: IMAGE PROCESSING AND ANALYSIS

Image data formats-Visual-Mapping and Enlarging-Digital –Data formats-Initial statistics-Extraction-Image preprocessing-Radiometric and Geometric correction –Image enhancement-Thematic information extraction-Digital charge detection –Geographic information systems.

Unit V: APPLICATIONS

Geologic and soil mapping-Land use and Land Cover mapping Agricultural –crop assessment, Forestry-Water resource-ground water potential-recharge areas-Urban and Regional Planning –Wild life ecology-Archeological-Environmental-Pollution Metrology-Oceanography.

TEXT BOOKS:

1. Remote Sensing and Image Interpretation- Thomas M.Lillesand and Ralph W.kiefer-John Wiley and Sons.
2. Introductory Digital Image Processing –A Remote Sensing Perspective-John R.Jensen-Prentice hall.