CE/BOS/OE403 /0210

K L UNIVERSITY

IMAGE INTERPRETATION USING REMOTE SENSING (09-OE403)

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SYLLABUS

UNIT – 1

Introduction and Physics of Radiant Energy: Definition, History, Basic components of Remote sensing, Passive and active remote sensing. Electromagnetic Spectrum, Energy source and its characteristics, Nature of EMR **EMR Interaction with Earth Surface Materials:** Spectral signature concepts – Spectral reflectance & emittance – Typical spectral reflective characteristics of water – vegetation, soil, minerals/rock, man-made structures

UNIT – 2

Remote Sensing Platforms And Sensors: Introduction; Satellite system parameters; instrumental and viewing parameters, sensor parameters: Spatial, Spectral and Radiometric resolutions, Imaging sensor systems: Multi spectral imaging sensor systems, Thermal sensing systems, microwave image systems. Earth resources satellites: Landsat, SPOT, IRS, and other recent satellites. Meteorological satellites: NOAA, GOES, NIMBUS, Meteosat series, Oceansat, IKONOS satellites.

UNIT – 3

Introduction of Maps:

Introduction, Map as a model, Spatial elements and terminology, Classification of maps, Map scale, Spatial referencing system, Computers in map production, General software's in map production. Types of data products; Image interpretation strategy, Levels of interpretation keys; Topography**Visual Image Interpretation:** Introduction; Types of pictorial data products; Image interpretation strategy, Levels of interpretation keys; Process of image interpretation; Basic elements of image interpretation. Overview on visual image interpretation equipment.

UNIT – 4

Elements of Visual Image Interpretation: Key elements of visual image interpretation, Topography, Drainage Pattern and Texture, Erosion, Image tone, Vegetation and land use; Concept of converging evidence. Temporal aspects of image interpretation. **Image Resolution, Field Data and image interpretation –** Target Variables, System Variables, Operation Conditions, Measurement of Resolution, Mixed Pixels, Kinds of Field Data, Nominal Data, Field Radiometry, Locational Information, Geographic Sampling, Image Interpretation tasks, Strategies, collateral information, interpretive overlays, preparation for manual interpretation, Image Scale Calculations.

UNIT – 5

Visual Image Analysis: Visual image analysis for land use / land cover mapping, geological and soil mapping, Agriculture applications for forestry applications, water resources applications, Urban and regional planning, Environmental assessment. Principles of land form identification and evaluation : Sedimentary, Igneous and Metamorphic rock terrain.

TEXT BOOKS:

1. Lillesand, T.M. and Kiefer R.W. Remote Sensing and Image Interpretation, John Wiley and Sons, Inc, New York, 1987.
2. M.Anji Reddy , Text book of Remote sensing and GIS by, BSP Publications, Hyderabad, 2001.

REFERENCE BOOKS:

1. Remote sensing by JAMES B. CAMPBELL. Published by Taylor & Francis Ltd.,
2. Remote Sensing Principles and Interpretation by Floyd F. Sabins, Jr. Published by Freeman & Co., New York.
3. Principles of Remote Sensing – Paul Curran P.J., - ELBS Publications