MEN-C 302 : Remote Sensing and GIS in Environmental Management M.M.: 70

UNIT – I

Introduction to Remote Sensing: Definition, Necessity and Application and Scope. Electromagnetic radiation, energy source and radiation principles. Atmospheric effects on radiation: (Interaction of EMR with atmosphere and earth surface features, Spectral reflectance of soil, water and vegetation). Real Remote Sensing System and its characteristics.

UNIT - II

Sensors and platforms used in Remote sensing. Aerial Photographs, Aerial photo-classification based on altitude of camera lens, distortions caused due to flight irregularities, overlaps, scale, relief displacement and its effects. Photo recognition elements. Different types of photographs., aerial photography and its characteristics, photogrammetry, Elements of image interpretation

UNIT - III

Elements of photographic systems. Land stat, IRS and other satellite systems- satellite data. Principals involved in thermal IR image and microwave image interpretation. Spectral reflectance, Digital image processing (DIP), Multi-spectral classification (supervised and un-supervised).

UNIT – IV

Applications of Remote Sensing and Aerial photographs in environmental monitoring, forestry mapping of forest types, landscape analysis, urban development, water resources, habitat suitability analysis, species analysis, wildlife habitat management,

UNIT - V

Introduction to Geographical Information Systems and GIS software, Fundamentals of GIS: Layers and features, Raster/Vector- Geo-referencing and projection, Spatial data and GIS basics; Data attributes and spatial topology, Projection / Image registration, Digitization and data attributes -map data representation, GPS.

NOTE: The question paper shall consist of two sections (A & B). Section A shall contain ten short answer type questions of six marks each and student has to attempt any five questions in about 150 words each. Section B shall consist eight long answer type questions of ten marks each and student shall be required to attempt any four questions in detail. Questions shall be uniformly distributed from the entire syllabus. The previous year paper can be used as a guideline and the following syllabus should be strictly followed while setting the question paper.