

Paper – 1 **FUNDAMENTAL OF INFORMATION TECHNOLOGY AND GEOGRAPHIC INFORMATION SYSTEM**

UNIT – I

Introduction to Information Technology, Applicability of information technology. Introduction to computers, Elements of computer system; Basic structures of computers – layout and their function; classification and types of computer; Hardware and Software components; Utility and Limitations of computers.

UNIT – II

Input and Output devices – Magnetic Media Devices; Printer character – line and page type, Scanner, Digitizer, Plotter; Software and their types; Computer language; Number system; Codes used in computer – ASCII, EBCDIC; Machine language; Assembly Language; High level language; Flow Chart; Decision Table, Algorithm and Interpreter, compilers .

UNIT – III

Internal and External commands of MS-DOS, WINDOWS, Computer programming languages C++, VB, DBMS, Basic Data Information, Data Modeling, Data Base Designing and Oracle; Web design and Web publishing; HTML, Introduction to Internet.

UNIT – IV

Geoinformatics – Basic component of Geoinformatics; Concept of Geographic Information System; Vector and raster Data; Input and Output Devices; Database Design, structure and analysis; Digital Elevation model; Data Integration

Theory : 70

Assignment : 30

Project : 80 + 20 viva voce

S. Sharma

Paper – 2

FUNDAMENTALS OF REMOTE SENSING

UNIT – I

Introduction – History and development of Remote Sensing; Concept of Remote Sensing; Energy resources and radiation principles; Electromagnetic Spectrum and its divisions; Interactions of electromagnetic radiation with atmosphere and earth's material; An ideal Remote Sensing System;

UNIT – II

Platforms, Satellites and their characteristics – Geo-stationary and sun-synchronous, Remote Sensing Sensors Types and their characteristics Multi-spectral Scanners-; Optical mechanical scanners – MSS, TM, LISS, WIFS, PAN

UNIT – III

Concept of Resolution – Spatial, Spectral, Temporal, Radiometric, Spectral Signatures and ground truth collection; Spectra of rocks, minerals and soils; Basic concept of Thermal remote sensing and Microwave Remote Sensing

UNIT – IV

Multidate, multispectral and multidisciplinary concepts, Techniques of visual interpretation; Concept of Digital Image Processing; Image Rectification and Corrections; Image Enhancement Techniques; Image Classification

Sestoruna

Paper – 3

PHOTOGRAMMETRY AND MODERN CARTOGRAPHIC TECHNIQUES

UNIT – I

Definition and History of aerial photographs, Fundamental Principles and techniques of aerial photography; Photographic flight mission; Types of aerial photographs; Factors affecting and aerial photographs; Types of camera, film and filters; scale of aerial photographs and factors affecting scale variation; Aerial Mosaics, Construction and types of mosaic; Annotation.

UNIT – II

Geometric elements of aerial photographs; Relief displacement; Stereoscopic and Pseudoscopic Vision; Vertical Exaggeration factors affecting vertical exaggeration, determination of vertical exaggeration.

UNIT – III

Viewing instruments; Direct Optical Projection Stereo plotter, components and projection systems; Image Parallax, Principle of floating mark and parallax equation, stereoscopic methods of parallax measurements; Measurement of dip, height and thickness of strata through aerial photographs.

UNIT – IV

Introduction to cartography, nature and scope of cartography; Digital cartography - elements of digital cartography; Relation between digital cartography, RS & GIS Conventional mapping VS Digital mapping ; Scale, reference and coordinate system; Map Projections; Cartographic design - map design principles, symbolisation and lay out; Map digitization and Map Compilation

P. Chandra Sin

S. Srinama

UNIT - I

Concept of Resources; Resources classification systems; criteria of classification; Natural and cultural resources; sustainable Development concepts and definition. Land resources; Land use / land cover mapping through remote sensing; Agricultural resources; RS and GIS applications in agricultural studies

UNIT - II

Basic concept of water resources: Hydrological cycle; Spectral characteristics of water and Relevance of RS techniques for hydrological investigations; Drainage mapping and Morphometric analysis; Water harvesting structures and optimum site selection for rain water harvesting through remote sensing; Watershed management- introduction and concept and Role of Remote Sensing in watershed conservation, planning and management

UNIT - III

Forest Resources - Forest Classification, types and their distribution Vegetation type and density mapping / classification; Forest cover mapping and change detection through remote sensing; Forest fire - identification, forecasting and Risk area mapping; Bio diversity characterization; Wildlife habitat mapping. Role of remote sensing in forest management and forest recreation

UNIT - IV

Population resources; Remote Sensing in Human settlement and urban planning; Urban Sprawl and change detection studies; Remote Sensing in Oil Exploration; Mineral Resource Management using GIS; Remote sensing applications in Coastal and Marine environment; Resource conservation and planning for development.

Seshoramo
17/11/14