

Semester II

Paper 201: Introduction to Geo Informatics

Unit – I

15 Lectures

- 1.1 Fundamentals of Databases: Data storage, basic file structures, types of database, advantages of database
- 1.2 Database management systems
- 1.3 Spatial and non-spatial databases, scales of measurement
- 1.4 Entity Relationship Model, SQL

Unit – II

15 Lectures

- 2.1 Geographic Information System: Definition, concept, components, functions and applications.
- 2.2 Spatial Data Models: Vector and Raster, Vector representation (point, line, area and TIN)
- 2.3 Concepts of arc, node, vertices and topology.
- 2.4 Coordinate Reference Systems: Geographic and Projected, Map Projections and Datum for GIS data.

Unit – III

15 Lectures

- 3.1 Vector-based spatial analysis: single layer operations (extraction and proximity) and multilayer operations (overlay operations)
- 3.2 Vector analysis- geoprocessing tools
- 3.3 Vector analysis- geometrical tools
- 3.4 Vector- analysis tools

Unit – IV

15 Lectures

- 4.1 Raster-based spatial analysis: Georeferencing, Spatial Interpolation and raster generation
- 4.2 Raster reclassification, arithmetic, relational and logical operations
- 4.3 Raster- analysis tools
- 4.4

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