

# **GEOSPATIAL TECHNOLOGY (740)**

**Class XII**

**GEOSPATIAL TECHNOLOGY (740)**  
**THEORY**

**Time: 3 Hours**

**Marks: 60**

**Chapter–1: Remote Sensing (RS)**

**20**

- Introduction.
- Spectral Reflectance Signature.
- Digital Image Processing.
- Visual Interpretation of Satellite data.
- Aerial Photo and Its Interpretation.
- Advanced Remote Sensing Technologies.
- Advantages and Benefits of RS.

**Chapter–2: Geographic Information System (GIS)**

**20**

- Introduction.
- GIS Data Element and Data Structure.
- Fundamentals of Database Concept.
- Data Input to GIS System.
- GIS Data Editing.
- Attribute Data Linking.
- Spatial and Non Spatial data Analysis.
- Map Projection and Coordinate System.
- Digital Cartography.
- Advantages and Benefits of GIS.

**Chapter–3: Global Positioning System (GPS)**

**5**

- Introduction.
- GPS Accuracy and Accuracy factors.
- Types of GPS.
- List of Global Navigation System.
- GPS Today & Limitations of GPS.
- Uses of GPS Technology.

**Chapter–4: Trends in Geospatial Technology**

**5**

- Introduction.
- Remote Sensing Trends & Technology.
- GIS Trends & Technology.
  - (i) Web Based GIS.
  - (ii) Enterprise GIS.
  - (iii) Mobile GIS.

- (iv) 3-D Visualization and Fly through.
- (v) Open GIS.
- GPS Trends & Technology.

**Chapter–5: Applications of Geospatial Technology**

**10**

- Water shed Studies.
- Flood Studies.
- Ground water Studies.
- Health Issues.
- Utility Studies.
- Security and Defense Studies.
- Urban and infrastructure Studies.

**PRACTICAL**

***Time: 2 Hours***

***Marks: 40***

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|-----------|---|----------|
| <b>1.</b> | <b>Projection of Data</b>   | <b>5</b> |
|           | <ul style="list-style-type: none"> <li>• Georeferencing.</li> <li>• Coordinating System and components.</li> <li>• Image to map registration.</li> <li>• Image to image registration.</li> </ul>  |          |
| <b>2.</b> | <b>Digitization</b>   | <b>5</b> |
|           | <ul style="list-style-type: none"> <li>• Building Topology.</li> </ul>  |          |
| <b>3.</b> | <b>Digital Image Processing</b>   | <b>5</b> |
|           | <ul style="list-style-type: none"> <li>• Image enhancement.</li> <li>• Unsupervised classification.</li> <li>• Supervised classification.</li> </ul>  |          |
| <b>4.</b> | <b>Geospatial Data Creation and Editing</b>   | <b>5</b> |
|           | <ul style="list-style-type: none"> <li>• Querying (Location parameters, graphics etc.).</li> <li>• Projection data.</li> <li>• Building geo database.</li> </ul>  |          |
| <b>5.</b> | <b>Spatial Analysis &amp; Thematic Mapping</b>  | <b>5</b> |
|           | <ul style="list-style-type: none"> <li>• Overlay analysis</li> <li>• Geoprocessing of data intersection, union dissolve, merge, clip.</li> <li>• Functional attribute and expression.</li> <li>• Statistics and Report generation.</li> </ul> |          |
| <b>6.</b> | <b>Symbology &amp; Layouts</b>  | <b>5</b> |
|           | <ul style="list-style-type: none"> <li>• Map surfing.</li> </ul>  |          |

- Preparing map and its layout.
- Indexing.
- Scale and annotation.
- Preparing maps for presentation.

## **7. On Job Training**

**10**

- Preparation of maps for.
- Environment analysis.
- Urban area.
- Water bodies.
- Agriculture and Forest Collecting ground truth with GPS Overlaying of different maps in GIS.