GOVERNMENT OF INDIA

GEOLOGICAL SURVEY OF INDIA TRAINING INSTITUTE

HYDERABAD

SCHEME: ITEC   **PROPOSED YEAR: 2024-25**

Course Name	Duration	Maximum Seats	Minimum Seats	Stream
Geographic Information System for Geoscientists	16-01-2025 to 06-02-2025	20	10	Engineering and Technology

COURSE DETAILS

Course Name	Geographic Information System for Geoscientists
Start Date	16-01-2025
End Date	06-02-2025
Aim & Objective	To enable Geoscientists and Technicians to use GIS as a tool for Data Management and Decision Support in the Management of Earth Resources
Mode of Evaluation	Project Work and Presentation
Education Qualification	Graduate in any subject in Earth Science (Geology, Geophysics, Hydrogeology, Environmental Science, Geography, Surveying, etc.)
Work & Experience	5 Years
Target Group	Scientists, Surveyors, Teachers, Technicians, etc. dealing with Geoscientific Studies / Research on Earth Resource & Utility Management

COURSE OVERVIEW

The course in Geographic Information System for Geoscientists is designed to equip the participants with the latest trends in GIS-based spatial data processing, analysis, visualization, and decision-making. The course includes exercises and case studies with the view to develop skills in data capture, data integration, digital mapping, raster and vector geoprocessing, spatial analysis / modeling and use of GIS as a data management / decision-making tool in earth science & natural resource management, geography, forestry, hydrology, environmental science, pollution studies and other related domains.

COURSE CONTENT

- GIS concepts: Introduction to GIS, Data models and planning of GIS projects

- Data input: Digitization of features, import of widely used vector and raster data formats, creation of attribute tables, RDBMS concepts, SQL, etc.

- Data processing: Projections; vector and raster data, on-screen editing of maps and tables, topological editing, data and coordinate transformations, etc.

- Data visualization: display of maps and tables in map windows, display of raster layer overlain with multiple vector layers, 3D views, etc.

- Data output & presentation: Preparation of GIS outputs as thematic maps, introduction of Desktop cartography, map layout design, map generalization, map composition, map annotation, etc.

- Drainage extraction / drainage morphometry and its significance, Terrain Analysis, etc.

- Interpolation: Concept of interpolation and contouring of anomalies.

- Geostatistics: Concept of Stationary and Regionalized Variables in Geostatistics, Experimental Variogram and Variogram modelling and interpolation techniques and error estimation in prediction using Kriging

- Use of GIS in site suitability analysis and Mineral Prospectivity Mapping using Boolean, Index Overlay, and other relevant methods.

- Project work.

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