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EXPERIMENT NO- 04.

VARIOUS APPLICATIONS ON GIS & GPS IN CIVIL ENGINEERING.

GIS: a Geographical Information System (GIS) is a system designed to capture, store, manipulate, analyze manage and present all types of geographical data.

Applications of GIS:

- → Mineral Mapping
- → Urban development
- → Risk Management
- → Resource Management
- → Transportation
- → Remote sensing
- → Landfills site section
- → pollution Monitoring
- → Natural Hazard Assessment.
- → Watershed Analysis

Watershed Analysis:

It is a term used to describe the process of implementing land use practice and water management practices to protect and improve the quality of water and other natural resources within a watershed by managing the use of those land and water resources in comprehensive manner.

* GIS: map water resources and link them to database.
* Data: land use & land cover, geology, soil, hydrography and topography
* Planners/ Engineers link their modelling system to the attribute data.

Transportation:

i) Planning: → involves surveys, review of existing infrastructure.
→ GIS: integrate, manage, analyze & visualise wide range of data sets.

ii) Design: → GIS: data management tools to manage and share data b/w GIS & CAD.

iii) Maintenance: detailed understanding of the location of assets for transport infrastructure.

iv) Information: → up to date information system for travellers.
→ The wide choice of travel options require true multi-modal solutions.

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GPS: Global Positioning system is a network of orbiting satellites that sends precise details of their position in space back to earth.

Applications of GPS in civil Engineering:

- → Surveying
- → Navigation
- → Military.
- → Land seismic surveying
- → Environmental Monitoring.
- → Deployment of Equipment / machines.

Surveying Land seismic:

Many companies in India and abroad uses GPS to locate different points, preparing contour maps, giving alignments of roads, bridges where precision is essential. This system gives us the accurate geographic position required for land surveying.

Foreg: civil engineers have to carry out subsurface geology first to identify perfect spot to drill. Also, marine seismic surveying can be applied to civil engineers as they seek to study composition of Rocks.

Deployment of Equipment / Machines.

civil engineers usually incorporates large projects that rely on machines. The supervisors use GPS to track the location of these machines. Also, they can deploy the equipment to different sites with the help of GPS.