



CIVIL ENGINEERING AND CONSTRUCTION TRAINING

GIS for Engineering and Infrastructure Planning

5 day course

Classroom, online or in-house

Course overview

Engineers routinely plan pipelines, roads and service extensions from scanned drawings and spreadsheets that cannot answer a simple spatial question such as which households sit more than a kilometre from a standpipe. This course teaches geographic information systems as an engineering tool. Delegates start with coordinate reference systems and the datums used in the region, including Hartebeesthoek94 in South Africa, then work through vector and raster data, digitising, attribute tables and topology. Analysis sessions cover buffering, overlay, network routing, terrain models, slope and catchment delineation, and suitability analysis for siting. Asset registers for water, sewer and road networks are built and linked to condition data. Open source software is used throughout. Delegates leave able to assemble, analyse and map infrastructure data for planning decisions.

What you will learn

- Explain coordinate reference systems, projections and regional datums
- Import, digitise and clean vector and raster datasets
- Structure attribute tables and topology for infrastructure networks
- Apply buffer, overlay and proximity analysis to planning questions
- Derive slope, catchments and drainage lines from digital elevation models
- Perform network routing and service area analysis
- Build and maintain spatial asset registers linked to condition data
- Produce clear maps and outputs for engineering reports and decision makers

Who should attend

- Civil and municipal engineers
- Infrastructure and town planners
- Asset managers in water, roads and electricity utilities
- Engineering technologists handling spatial data
- Project managers on rural and urban service delivery programmes

Course outline

- 01 Spatial data concepts and coordinate systems
- 02 Vector and raster data handling
- 03 Attributes, topology and data quality
- 04 Proximity and overlay analysis
- 05 Terrain models and catchment delineation
- 06 Network routing and service areas
- 07 Infrastructure asset registers
- 08 Suitability analysis for siting
- 09 Map production and reporting

Upcoming dates



Dates	Venue	Format	Fee per delegate
12 to 16 October 2026	Maseru, Lesotho	Classroom	R19,950
7 to 11 December 2026	Online	Online	R8,500
14 to 18 December 2026	Durban, South Africa	Classroom	R19,950
1 to 5 March 2027	Cape Town, South Africa	Classroom	R19,950

Fees and how to register

This 5 day course is **R8,500** per delegate online, **R19,950** in the classroom in South Africa, Botswana, Namibia, Lesotho and Eswatini, and **USD 1,325** in the classroom elsewhere in Africa. In-house training is quotation on request. Book 2 or more delegates on this course and save 10%.

To register or request an in-house proposal, visit www.afrisciencegroup.com, email info@afriScience.co.za, or WhatsApp us on **+27 63 479 1136**.

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