Technical Surveying Training

25 – 29 April 2027
Online



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Ref: 328777_227677 **Date:** 25 – 29 April 2027 **Location:** Online **Fees:** 2700 GBP

Why This Course

Surveying is the foundation of every successful engineering, construction, and infrastructure project.

Accurate surveying ensures the precision, safety, and efficiency of project planning, design, and execution.

The Technical Surveying Training program provides participants with the knowledge and practical skills necessary to perform high-quality land, engineering, and geospatial surveys.

It combines theoretical fundamentals, modern instrumentation, and applied fieldwork to prepare participants for real-world technical challenges.

Through interactive sessions, field demonstrations, and hands-on practice, participants will learn how to use advanced surveying tools, interpret spatial data, and ensure measurement accuracy in various engineering and construction environments.

What You'll Learn and Practice

By joining this program, you will:

- Understand the principles, concepts, and methods of modern surveying.
- Gain hands-on experience using total stations, GPS/GNSS systems, and digital levels.
- Learn techniques for topographic, geodetic, and engineering surveys.
- Master data collection, adjustment, and mapping workflows.
- Apply surveying mathematics and coordinate systems in real-world settings.
- Explore construction layout, boundary, and control surveying applications.
- Understand error analysis, quality control, and safety standards in field operations.
- Gain familiarity with surveying software and data processing tools AutoCAD, GIS, etc..

The Program Flow

Day 1: Fundamentals of Surveying

- Introduction to surveying: purpose, types, and scope.
- Principles of measurement, accuracy, and error management.
- Surveying instruments and equipment overview.
- Coordinate systems, map projections, and reference datums.
- Case study: The role of surveying in major infrastructure projects.



Day 2: Linear and Angular Measurement Techniques

- Chain, tape, and electronic distance measurement EDM.
- Total station setup, calibration, and operation.
- Angle measurement, traversing, and coordinate computation.
- Field practice: Conducting a closed traverse and adjusting errors.
- Workshop: Data logging and coordinate adjustment using software.

Day 3: Leveling and Topographic Surveying

- Principles of differential and trigonometric leveling.
- Benchmark establishment and height transfer.
- Contour mapping and topographic data collection.
- Cross-section and longitudinal section surveys for engineering works.
- Practical session: Performing a complete topographic survey and map generation.

Day 4: GPS/GNSS and Engineering Surveying Applications

- Global Navigation Satellite Systems GNSS — GPS fundamentals and techniques.
- Static, rapid static, and RTK positioning methods.
- Control networks and geodetic survey operations.
- Construction surveying: setting out, alignment, and as-built surveys.
- Field demonstration: Setting control points and performing GNSS data capture.

Day 5: Data Processing, Quality Assurance, and Project Integration

- Data reduction, adjustment, and coordinate transformation.
- Integration of surveying data with CAD and GIS platforms.
- Error analysis, quality assurance, and report documentation.
- Health, safety, and environmental HSE practices in field surveying.
- Final project: Executing a full survey workflow from field to map output.

Individual Impact

- Build a strong technical foundation in surveying theory and practice.
- Strengthen proficiency with modern surveying instruments and software.
- Enhance analytical and problem-solving skills for spatial data accuracy.
- Develop confidence in executing and managing field survey operations.
- Increase professional credibility as a technically skilled survey specialist.



Work Impact

- Improve project accuracy, efficiency, and data reliability in surveying operations.
- Reduce measurement errors and rework through standardized methods.
- Strengthen integration between design, construction, and geospatial teams.
- Support compliance with technical, safety, and quality management standards.
- Enhance the organization’s capability in delivering precision-driven engineering projects.

Training Methodology

This program integrates theory, hands-on field practice, and real-world data analysis to ensure complete technical competence.

Learning methods include:

- Classroom instruction with detailed technical demonstrations.
- Field training with total stations, GPS, and digital levels.
- Data processing workshops using AutoCAD Civil 3D, GIS, and survey software.
- Group projects and team-based field assignments.
- Assessment of field accuracy, documentation, and report presentation.

Beyond the Course

Upon completion, participants will be capable of performing comprehensive surveying tasks across civil, construction, and geospatial projects.

Graduates of this program will emerge as technically proficient and safety-conscious survey professionals — able to deliver precise, reliable, and high-quality data that supports project success from design to execution.

