Engineering Surveying Training Course

Professional Development Training Course Outline

Category	Construction Institute	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Engineering Surveying Training Course is designed to build advanced expertise in modern surveying technologies, geospatial engineering, construction measurement, and infrastructure development. This course equips engineers, surveyors, technicians, and project professionals with practical knowledge of Total Station Surveying, GPS/GNSS Technology, Drone Surveying, 3D Laser Scanning, BIM Integration, GIS Applications, Digital Terrain Modeling (DTM), and Smart Construction Surveying. Participants gain industry-ready skills to perform accurate field surveys, analyze spatial data, manage engineering projects, and implement innovative surveying solutions for roads, bridges, buildings, utilities, mining, and land development projects.

With the growing demand for digital transformation, automation, and precision engineering, this training focuses on the latest trends in geospatial intelligence, AI-enabled surveying workflows, remote sensing, LiDAR technology, and sustainable infrastructure planning. Through practical exercises, real-world projects, and engineering case studies, learners develop the capability to apply advanced surveying methods for improved accuracy, productivity, safety, and decision-making in modern engineering environments.

Programme Curriculum

Engineering Surveying Training Course

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Course Duration

5 days

Course Objectives

By the end of the **Engineering Surveying Training Course**, participants will be able to:

1. Understand advanced principles of engineering surveying and geospatial data management.
2. Apply modern Total Station, GNSS, and GPS surveying techniques for precision measurement.
3. Develop expertise in construction setting out and infrastructure alignment surveys.
4. Perform accurate topographic surveys and digital terrain modeling (DTM).
5. Utilize Drone/UAV surveying technology for aerial mapping and inspection.
6. Apply GIS and spatial analytics for engineering decision-making.
7. Understand 3D laser scanning and LiDAR applications in surveying projects.
8. Integrate surveying workflows with Building Information Modeling (BIM) systems.
9. Perform advanced leveling, traversing, and control network establishment.
10. Improve project efficiency using digital surveying automation tools.
11. Analyze engineering survey data using modern CAD and geospatial software platforms.
12. Apply best practices in quality control, accuracy standards, and survey reporting.
13. Develop solutions for smart infrastructure using Industry 4.0 surveying technologies.

Target Audience

1. Civil Engineers and Structural Engineers
2. Land Surveyors and Geomatics Professionals
3. Construction Engineers and Site Managers
4. Infrastructure Project Managers
5. GIS Specialists and Mapping Professionals
6. Mining and Environmental Engineers
7. Architects and BIM Professionals
8. Government Planning and Development Officers

Course Modules

Module 1: Fundamentals of Engineering Surveying

- Principles of engineering measurements and surveying concepts
- Survey equipment selection and field procedures
- Coordinate systems, benchmarks, and control points
- Accuracy standards and error adjustment techniques
- **Case Study:** Establishing survey control networks for highway construction projects

Module 2: Advanced Total Station Surveying

- Total Station operation, calibration, and data collection
- Angle measurement, distance measurement, and coordinate calculations
- Traverse surveys and construction setting out methods
- Data transfer and digital field workflows
- **Case Study:** High-rise building foundation alignment and structural monitoring

Module 3: GNSS, GPS, and Satellite Surveying Technology

- Real-Time Kinematic (RTK) and differential GPS applications
- GNSS positioning techniques and accuracy improvement
- Establishing geodetic control networks
- Satellite-based engineering surveying workflows
- **Case Study:** Large-scale infrastructure corridor mapping using GNSS technology

Module 4: Construction Surveying and Setting Out

- Building, road, bridge, and pipeline setting out techniques
- Horizontal and vertical alignment surveys
- Earthwork volume calculations and monitoring
- Construction quality control surveying
- **Case Study:** Smart construction monitoring for highway development projects

Module 5: Drone Surveying, LiDAR, and Remote Sensing

- UAV photogrammetry principles and applications
- Drone-based topographic mapping workflows
- LiDAR scanning technology and point cloud processing
- Remote sensing applications in engineering projects
- **Case Study:** Drone-based progress monitoring for a large construction site

Module 6: GIS, CAD, and BIM Integration

- GIS-based engineering data management
- CAD drafting and survey data processing
- BIM-enabled surveying workflows
- Spatial analysis and infrastructure visualization
- **Case Study:** BIM coordination for smart building development projects

Module 7: Digital Terrain Modeling and Survey Data Analysis

- Creating Digital Elevation Models (DEM) and DTM surfaces
- Contour generation and terrain analysis
- Volume calculations and earthwork estimation
- Survey data visualization techniques
- **Case Study:** Mining site terrain modeling and resource planning

Module 8: Advanced Surveying Applications and Future Technologies

- Artificial Intelligence (AI) in surveying workflows
- Smart construction and automated measurement systems
- 3D laser scanning applications
- Survey data analytics and cloud-based collaboration

- **Case Study:** Digital twin development for smart infrastructure management

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com