Training course on Automated Quantity Take-offs from BIM Models

Professional Development Training Course Outline

Category	Civil Engineering and Infrastructure Management	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Accurate and efficient quantity take-offs are of critical importance in every phase of a construction project, underpinning everything from initial conceptual estimation to detailed bidding, precise procurement, and stringent cost control. Traditional manual methods, often reliant on static 2D drawings, are notoriously time-consuming, highly prone to errors, and struggle to keep pace with frequent design changes. This often leads to significant cost discrepancies, budget overruns, and project delays. In stark contrast, Building Information Modeling (BIM) offers a rich, intelligent 3D model environment, providing a powerful and dynamic foundation for automating the entire quantity take-off process, thereby ensuring significantly greater precision, consistency, and unparalleled speed throughout the project lifecycle. Training Course on Automated Quantity Take-offs from BIM Models is meticulously designed to provide participants with the practical application of cutting-edge BIM-based tools and advanced methodologies for performing automated quantity take-offs. The curriculum will encompass a deep understanding of the principles of BIM specifically tailored for quantity surveying, an exploration of various specialized software solutions designed for extracting quantities directly from BIM models, and mastery of advanced techniques for optimal model preparation and information management to ensure highly accurate take-offs. Furthermore, participants will implement efficient workflows for seamlessly integrating extracted quantities with comprehensive cost estimation software and robust project scheduling platforms. Through a balanced blend of essential theoretical foundations, extensive hands-on exercises, and practical project-based learning, this course will comprehensively prepare attendees to confidently leverage BIM for more reliable, transparent, and ultimately, far more efficient cost management across the entire project lifecycle.

Programme Curriculum

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Course Objectives

Upon completion of this course, participants will be able to:

1. Analyze the fundamental concepts of Building Information Modeling (BIM) and its specific advantages for automated quantity take-offs.
2. Comprehend the principles of accurate quantity surveying and estimation in the context of BIM-based workflows.
3. Master techniques for preparing BIM models to ensure optimal information extraction for quantity take-offs.
4. Develop expertise in utilizing specialized software applications for automated quantity take-off from BIM models.
5. Formulate strategies for defining measurement rules and classification systems compatible with BIM workflows.
6. Understand the critical role of data interoperability and open BIM standards (e.g., IFC) for seamless quantity extraction.
7. Implement robust approaches to validate, review, and report automated quantity take-off results.
8. Explore key strategies for integrating automated quantities with cost estimation software and project scheduling.
9. Apply methodologies for managing design changes and their impact on quantities throughout the project lifecycle.
10. Understand the importance of auditing and quality assurance for automated quantity take-off processes.
11. Develop preliminary skills in utilizing visual programming tools (e.g., Dynamo, Grasshopper) for custom quantity extraction.

12. Design and execute an automated quantity take-off for a specific building or infrastructure component using a BIM model.
13. Examine global best practices and future trends in BIM for quantity surveying, digital twin integration, and AI-driven estimation.

Target Audience

This course is ideal for professionals in quantity surveying, cost estimation, and BIM management:

1. Quantity Surveyors: Seeking to transition to BIM-based automated workflows.
2. Cost Estimators: Aiming to improve accuracy and efficiency in cost prediction.
3. BIM Managers & Coordinators: Enhancing their understanding of BIM's cost implications.
4. Civil Engineers: Involved in design and costing of infrastructure projects.
5. Construction Managers: Utilizing quantities for procurement and project control.
6. Project Managers: Overseeing project budgets and financial performance.
7. BIM/CAD Technicians: Responsible for model creation and data integrity.
8. Software Developers: Building tools for BIM-based quantity take-offs.

Course Duration: 5 Days

Course Modules

- **Module 1: Introduction to BIM and Quantity Take-offs**
  - Define Building Information Modeling (BIM) and its levels of maturity.
  - Discuss the traditional quantity take-off process and its limitations (manual, error-prone).
  - Understand the concept of "5D BIM" (cost estimation) and its value proposition.
  - Explore the benefits of automated quantity take-offs: speed, accuracy, consistency, change management.
  - Identify the role of quantity surveyors and estimators in a BIM environment.
- **Module 2: BIM Model Preparation for Quantity Extraction**
  - Comprehend the importance of model quality and information integrity for accurate take-offs.
  - Learn about best practices for BIM authoring (e.g., consistent naming conventions, proper object categorization).
  - Master techniques for checking model elements' properties, parameters, and geometric information relevant to quantities.
  - Discuss strategies for handling complex geometry and custom components for quantity extraction.
  - Apply model auditing tools to prepare BIM models for automated take-offs.
- **Module 3: Software Applications for Automated Quantity Take-offs**
  - Develop expertise in utilizing specialized software for automated quantity take-off (e.g., Navisworks Quantify, Assemble, CostX).
  - Learn about features and functionalities of various BIM authoring software (e.g., Revit, ArchiCAD) for built-in quantity tools.
  - Master techniques for navigating BIM models and selecting elements for quantity extraction.
  - Discuss the capabilities of these tools for measuring lengths, areas, volumes, and counting components.
  - Apply hands-on exercises using selected software to extract quantities from sample models.
- **Module 4: Measurement Rules and Classification Systems**
  - Formulate strategies for defining and applying measurement rules consistent with industry standards (e.g., NRM, CESMM).

    - Understand the principles of classification systems (e.g., UniClass, Omniclass, MasterFormat) for organizing quantities.
    - Explore techniques for mapping BIM model parameters to required quantity attributes.
    - Discuss the importance of a standardized approach to ensure consistent and comparable take-offs.
    - Apply classification principles to structure extracted quantities for reporting.
- **Module 5: Data Interoperability and Information Exchange**
    - Understand the critical role of data interoperability for seamless quantity take-offs across different platforms.
    - Implement robust approaches to utilizing Industry Foundation Classes (IFC) as an open BIM standard.
    - Explore techniques for importing and exporting BIM models and quantity data between software.
    - Discuss strategies for managing data flow from design models to quantity surveying and estimation tools.
    - Examine common challenges in data exchange and solutions for smooth workflows.
- **Module 6: Quantity Validation, Reporting, and Change Management**
    - Apply methodologies for validating automated quantity take-off results against design intent and manual checks.
    - Master techniques for generating comprehensive quantity reports, schedules, and dashboards.
    - Understand the process of managing design changes and automatically updating quantities in real-time.
    - Discuss strategies for version control and tracking changes in quantities over the project lifecycle.
    - Explore methods for collaborating on quantity take-offs with project stakeholders.
- **Module 7: Integration with Cost Estimation and Project Scheduling**
    - Explore key strategies for integrating automated quantities with cost estimation software.
    - Learn about linking quantities to cost databases, unit rates, and pricing models.
    - Discuss the application of automated quantities for generating detailed bills of quantities (BoQs) and cost breakdowns.
    - Understand the role of quantities in 4D (scheduling) and 5D (costing) BIM for project planning and control.
    - Examine case studies of integrated cost and schedule management using BIM-derived quantities.
- **Module 8: Advanced Topics and Future Trends in BIM QS**
    - Examine global best practices and innovative applications of BIM for quantity surveying.
    - Develop preliminary skills in assessing the use of visual programming (e.g., Dynamo, Grasshopper) for custom quantity scripts
    - Discuss the convergence of BIM-based QS with Digital Twins for facility management and lifecycle costing.
    - Explore future trends: AI-driven quantity take-offs, machine learning for cost prediction, blockchain for payment.
    - Design a strategic roadmap for implementing advanced automated quantity take-off workflows in an organization.

Training Methodology

- **Interactive Workshops:** Facilitated discussions, group exercises, and problem-solving activities.
- **Case Studies:** Real-world examples to illustrate successful community-based surveillance practices.
- **Role-Playing and Simulations:** Practice engaging communities in surveillance activities.

- **Expert Presentations:** Insights from experienced public health professionals and community leaders.
- **Group Projects:** Collaborative development of community surveillance plans.
- **Action Planning:** Development of personalized action plans for implementing community-based surveillance.
- **Digital Tools and Resources:** Utilization of online platforms for collaboration and learning.
- **Peer-to-Peer Learning:** Sharing experiences and insights on community engagement.
- **Post-Training Support:** Access to online forums, mentorship, and continued learning resources.

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

- Participants must be conversant in English.
- Upon completion of training, participants will receive an Authorized Training Certificate.
- The course duration is flexible and can be modified to fit any number of days.
- Course fee includes facilitation, training materials, 2 coffee breaks, buffet lunch, and a Certificate upon successful completion.
- One-year post-training support, consultation, and coaching provided after the course.
- Payment should be made at least a week before the training commencement to Fineskill Training Center account, as indicated in the invoice, to enable better preparation.

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
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

Start Date	End Date	Location	Price
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

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