



PB INSTITUTE OF RESEARCH AND TECHNOLOGY

P.O Box 21457-00100

Nairobi - Kenya

Mobile: +254 721 214 795

Email: info@pebblesinstitute.org

Data Analytics For Internal Audit

Duration: 5 days

On-Site

01 Who Should Attend

- This course is designed for internal audit professionals who want to enhance their data analysis skills and leverage data for more effective auditing, including:
 - Internal Auditors
 - Audit Managers
 - IT Auditors
 - Data Analysts working in Internal Audit
 - Anyone involved in internal audit activities

02 About the Course

Internal auditors need to move beyond traditional audit methods and embrace the power of data. This comprehensive training course on Data Analytics for Internal Audit equips participants with the skills to leverage data analysis techniques to enhance audit effectiveness and efficiency. Participants will learn how to extract, clean, analyze, and visualize data to identify risks, trends, and anomalies, enabling them to provide valuable insights and recommendations to management. This course bridges the gap between traditional auditing and data-driven insights, empowering internal auditors to become strategic advisors and drive positive change within their organizations.



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03 Workshop Objectives

- Understand the importance of data analytics in internal audit.
- Identify opportunities to use data analytics in different audit areas.
- Extract data from various sources and prepare it for analysis.
- Use data analytics tools and techniques (e.g., Excel, SQL, Python, specialized audit software).
- Perform descriptive analytics to identify trends and patterns.
- Conduct diagnostic analytics to understand the root causes of issues.
- Apply predictive analytics to forecast potential risks.
- Detect anomalies and outliers that may indicate fraud or errors.
- Visualize data to communicate audit findings effectively.
- Use data analytics to improve audit efficiency and effectiveness.
- Provide data-driven insights and recommendations to management.
- Enhance their understanding of data analytics best practices.
- Contribute to a more data-driven and strategic internal audit function.
- Stay up-to-date with the latest trends in data analytics for internal audit.
- Become a more valuable and sought-after internal audit professional

04 Module Topics

Module 1: Introduction to Data Analytics for Internal Audit

- The evolving role of internal audit in a data-driven world.
- The importance of data analytics for enhancing audit effectiveness and efficiency.
- Key concepts in data analytics and their relevance to internal audit.
- Ethical considerations in using data analytics for audit purposes.
- Overview of data analytics tools and technologies commonly used in internal audit.

Module 2: Identifying Audit Areas and Opportunities for Data Analytics



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- Mapping internal audit processes and identifying areas where data analytics can add value.
- Examples of using data analytics in different audit areas (e.g., financial, operational, compliance, IT).
- Developing audit objectives and questions that can be addressed using data analytics.
- Prioritizing data analytics projects based on risk and potential impact.
- Integrating data analytics into the annual audit plan.

Module 3: Data Extraction and Preparation

- Identifying relevant data sources for audit analysis (e.g., ERP systems, databases, spreadsheets).
- Data extraction techniques and tools.
- Data cleaning and preprocessing: handling missing values, duplicates, and inconsistencies.
- Data transformation and formatting for analysis.
- Data validation and quality assurance.

Module 4: Descriptive Analytics for Trend and Pattern Identification

- Calculating descriptive statistics (e.g., mean, median, mode, standard deviation).
- Creating charts and graphs to visualize data and identify trends.
- Analyzing data to understand key performance indicators (KPIs) and metrics.
- Identifying patterns and relationships in data.
- Using descriptive analytics to gain insights into business operations.

Module 5: Diagnostic Analytics for Root Cause Analysis

- Using data analytics to investigate anomalies and outliers.
- Performing root cause analysis to understand the underlying reasons for issues.
- Applying statistical techniques to test hypotheses and draw conclusions.
- Using data analytics to identify control weaknesses and areas for improvement.
- Developing data-driven recommendations for management.

Module 6: Predictive Analytics for Risk Forecasting



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- Introduction to predictive analytics and its applications in internal audit.
- Using statistical models and machine learning techniques to forecast potential risks.
- Developing risk scores and prioritizing audit areas based on predicted risk levels.
- Using predictive analytics to proactively identify and mitigate risks.
- Evaluating the accuracy and reliability of predictive models.

Module 7: Anomaly Detection and Fraud Identification

- Using data analytics to detect unusual patterns and outliers that may indicate fraud or errors.
- Applying anomaly detection techniques to identify suspicious transactions or activities.
- Investigating potential fraud or irregularities using data analytics.
- Using data analytics to enhance fraud risk assessment and prevention.
- Communicating fraud-related findings to management.

Module 8: Data Visualization and Communication

- Creating compelling data visualizations to communicate audit findings effectively.
- Using dashboards and reports to present data insights to management.
- Developing data-driven narratives to tell the story behind the data.
- Tailoring communication to different audiences.
- Using data visualization to support audit recommendations.

Module 9: Data Analytics Tools and Technologies for Internal Audit

- Overview of commonly used data analytics tools and software (e.g., Excel, SQL, Python, R, Tableau, Power BI, specialized audit software).
- Hands-on exercises and case studies using different data analytics tools.
- Evaluating and selecting appropriate data analytics tools for specific audit needs.
- Staying up to date with emerging data analytics technologies and trends.