Data Analytics and IT Audit for Internal Auditors

1 – 12 August 2027
Cairo (Egypt)



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Introduction

As organizations continue to embrace digital transformation, internal auditors are increasingly expected to evaluate not only financial and operational controls but also the technology environments and data that drive business performance. Modern audit functions require a combination of IT auditing knowledge and data analytics capabilities to effectively assess risks, strengthen governance, and provide valuable insights to management.

This comprehensive training course combines the principles of IT Audit for Non-IT Auditors and Data Analytics for Internal Audit into a single integrated program. It equips participants with the knowledge and practical skills needed to understand IT environments, evaluate technology-related controls, analyze large volumes of data, identify risks and anomalies, and support evidence-based decision-making.

Through practical exercises, real-world case studies, and interactive workshops, participants will learn how to assess IT risks, review cybersecurity controls, utilize data analytics tools, detect irregularities, and enhance audit effectiveness through data-driven methodologies. The program provides a structured pathway for auditors to strengthen their ability to operate confidently within increasingly digital and data-intensive organizations.

Course Objectives

By the end of this course, participants will be able to:

- Understand the role of information technology and data analytics within modern internal auditing.
- Recognize the relationship between IT systems, business processes, and audit activities.
- Identify technology-related risks and evaluate their impact on organizational performance.
- Assess the adequacy and effectiveness of IT controls and cybersecurity measures.
- Apply audit techniques and data analytics tools to support assurance activities.
- Collect, validate, organize, and analyze audit data effectively.
- Detect anomalies, irregularities, fraud indicators, and operational risks using analytical techniques.
- Conduct IT risk assessments and align audit activities with organizational objectives.
- Develop audit programs that integrate technology and data-driven approaches.
- Design meaningful analytical reports and dashboards that support management decisions.
- Improve audit efficiency through automation, visualization, and continuous monitoring techniques.
- Communicate audit findings and recommendations in a professional and impactful manner.



Course Outlines

Day 1: Understanding IT Environments and Auditor Roles

- Overview of IT architecture and key components applications, networks, databases.
- Relationship between IT systems and business processes.
- The auditor's role in reviewing IT environments.
- Key IT risks affecting internal control frameworks.
- Understanding data flows and information processing.
- Practical exercise: Analyzing an organizational IT landscape.

Day 2: IT Controls and Cybersecurity Essentials

- Introduction to general and application controls.
- Access control management and segregation of duties.
- IT security fundamentals and common vulnerabilities.
- Data protection, encryption, and privacy principles.
- Assessing compliance with cybersecurity policies.
- Case study: Evaluating a security breach and identifying root causes.

Day 3: IT Audit Tools, Techniques, and Data Analytics

- Steps in planning and executing an IT audit.
- Using data analytics in auditing processes.
- Sampling methods and automated testing.
- Techniques for reviewing databases, applications, and system logs.
- Using tools to detect fraud and irregularities in electronic data.
- Workshop: Performing an IT audit simulation using sample data.

Day 4: Risk Assessment and Reporting in IT Audits

- Conducting IT risk assessments aligned with business objectives.
- Mapping controls to specific risks and identifying gaps.
- Evaluating the effectiveness of preventive and detective controls.
- Writing clear, actionable audit findings.
- Reporting IT audit results to management and audit committees.
- Group activity: Preparing a complete IT audit report.



Day 5: IT Governance, Compliance, and Continuous Improvement

- Understanding IT governance frameworks and standards.
- Aligning IT audit activities with corporate governance principles.
- Enhancing collaboration between audit and IT teams.
- Continuous monitoring and improvement of IT controls.
- Measuring IT audit performance through KPIs.
- Final workshop: Designing a roadmap for IT audit maturity improvement.

Day 6: Introduction to Data Analytics in Internal Audit

- Understanding the concept and importance of data analytics in auditing.
- Types of data used in internal audit processes.
- The data analysis lifecycle: from data collection to insight generation.
- Overview of key digital tools supporting data-driven auditing.
- Case study: detecting errors in financial transactions using data analytics.

Day 7: Data Collection and Organization

- Identifying internal and external data sources for audit purposes.
- Data cleaning, validation, and quality assurance techniques.
- Structuring audit databases for efficient analysis.
- Managing large datasets and ensuring data security.
- Workshop: building a structured data repository for audit analysis.

Day 8: Analytical Tools and Their Applications in Auditing

- Applying pivot tables and descriptive statistics to analyze data.
- Detecting trends, anomalies, and variances across transactions.
- Using data visualization tools for interactive reporting.
- Leveraging automation in data verification and reconciliation.
- Practical session: detecting unusual patterns using analytical dashboards.

Day 9: Advanced Analytics and Risk Detection

- Applying predictive analytics to assess future risks.
- Fraud detection using analytical modeling and machine logic.
- Developing key performance indicators KPIs for audit efficiency.
- Using multivariate analysis for comprehensive risk assessment.
- Group exercise: designing a data-based risk evaluation framework.



Day 10: Reporting and Continuous Improvement

- Creating dynamic and interactive audit dashboards.
- Presenting analytical findings effectively to management.
- Integrating analytics into audit planning and execution cycles.
- Building sustainable data-driven audit methodologies.
- Final project: preparing a complete audit report using analytical techniques.

Why Attend This Course? Wins & Losses!

- Gain practical knowledge of both IT auditing and data analytics within a single integrated program.
- Build confidence in evaluating IT environments, systems, and controls.
- Strengthen the ability to identify technology risks and cybersecurity weaknesses.
- Improve audit effectiveness through advanced analytical techniques and data-driven methodologies.
- Learn how to detect anomalies, irregularities, and fraud indicators more efficiently.
- Enhance decision-making through meaningful data analysis and visualization.
- Develop practical skills in audit automation, risk assessment, and continuous monitoring.
- Improve collaboration between audit, technology, risk, and business functions.
- Deliver higher-quality audit findings supported by reliable data and evidence.
- Position yourself as a modern auditor capable of addressing digital transformation challenges.

Conclusion

The future of internal auditing lies at the intersection of technology, data, and risk management. Organizations increasingly rely on auditors who can understand IT environments, evaluate digital controls, analyze large datasets, and provide meaningful insights that support governance and organizational performance.

This course provides a comprehensive learning experience that combines IT Audit and Data Analytics into a unified framework, enabling participants to strengthen both technical understanding and analytical capability. By integrating these disciplines, auditors can improve audit quality, enhance risk identification, support compliance efforts, and deliver greater value to stakeholders.

Upon completion, participants will possess the practical knowledge, tools, and confidence needed to conduct more effective, data-driven, and technology-focused audits that align with the evolving demands of modern organizations.

