Advanced Business Intelligence: Transforming Data into Actionable Insights

Washington (USA)

31 May - 4 June 2027

Advanced Business Intelligence: Transforming Data into Actionable Insights

Code: LM32 From: 31 May - 4 June 2027 City: Washington (USA) Fees: 5900 Pound

Introduction

This advanced five-day programme is designed to equip professionals with the knowledge and practical skills required to transform complex business data into actionable insights and strategic decisions. The course combines Business Intelligence, Data Analytics, Data Governance, Compliance Intelligence, Risk Analytics, Forecasting, Predictive Analytics, Artificial Intelligence, SQL, Python, DAX, interactive dashboards, and executive reporting.

Particular emphasis is placed on using SQL and Python to support advanced analytics and develop effective DAX queries and calculations, enabling participants to work more efficiently across modern Business Intelligence environments such as Power BI.

The programme combines conceptual learning with practical exercises, dashboard development, analytical scenarios, and a final capstone project based on a real-world business scenario.

Course Objectives

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

- Understand advanced Business Intelligence concepts, frameworks, and methodologies.
- Extract, clean, validate, transform, and manage business data effectively.
- Develop interactive dashboards and executive reports using Power BI and other BI tools.
- Apply SQL for data extraction, querying, transformation, and analytical preparation.
- Use Python to support data analysis, automation, forecasting, and advanced analytics.
- Develop and optimize DAX queries, measures, calculated columns, and analytical calculations in Power BI.
- Apply data governance, compliance intelligence, and risk analytics principles.
- Perform advanced statistical analysis, regression, clustering, and forecasting.
- Apply predictive analytics and AI-powered insights to business problems.
- Combine structured, semi-structured, and unstructured data to generate deeper insights.
- Transform analytical findings into actionable business recommendations.
- Present executive-level dashboards, reports, and data-driven recommendations confidently.

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Day 1: Foundations of Business Intelligence & Data Management

Module 1: Introduction to Business Intelligence BI

- Overview of Business Intelligence concepts, frameworks, and methodologies.
- The role of BI in modern business decision-making.
- Business Intelligence architecture and analytical workflows.
- Overview of BI tools such as Power BI and Tableau.
- Understanding the relationship between BI, Data Analytics, AI, and Decision Intelligence.

Module 2: Data Extraction, Preparation, Visualization and Interactive Dashboards and Reports

- Understanding data sources and data extraction techniques.
- Data cleaning, validation, and profiling.
- Managing data quality, consistency, accuracy, and integrity.
- Preparing datasets for analysis and reporting.
- Selecting appropriate charts, graphs, and visual elements.
- Data storytelling techniques.
- Creating dynamic dashboards using BI tools.
- Applying filters, slicers, drill-down, and drill-through functionality.
- Developing KPI dashboards and management reports.
- Dashboard design best practices.

Module 3: SQL, Python & DAX for Business Intelligence

- Introduction to SQL for Business Intelligence and analytics.
- Querying and extracting data using SQL.
- Filtering, joining, aggregating, and transforming datasets.
- Preparing analytical datasets for Power BI.
- Introduction to Python for business data analysis.
- Using Python to clean, transform, analyze, and validate data.
- Integrating SQL and Python workflows with BI environments.
- Introduction to DAX and the role of DAX in Power BI analytics.
- Creating DAX measures and calculated columns.
- Using SQL and Python to support the development and validation of DAX-based analytics.
- Building business calculations and analytical measures using DAX.

Practical Session

- Building interactive dashboards in Power BI/Tableau.
- Extracting and preparing data using SQL.
- Performing data analysis using Python.

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- Developing DAX calculations and measures.
- Developing management reporting solutions.
- Publishing and sharing reports.

Day 2: Data Governance, Compliance Intelligence & Risk Analytics

Module 1: Data Governance Frameworks

- Principles and components of data governance.
- Data quality management and governance policies.
- Regulatory and organizational compliance requirements.
- Establishing a governance-driven data culture.
- Data ownership, accountability, and access management.
- Ensuring accuracy, consistency, integrity, and reliability of analytical data.

Module 2: Compliance Intelligence and Analytics

- Fundamentals of compliance intelligence.
- Leveraging analytics to monitor compliance performance.
- Detecting compliance gaps, exceptions, and anomalies.
- Compliance reporting and regulatory dashboards.
- Using analytics to strengthen internal controls.
- Applying SQL, Python, and BI tools to compliance data analysis.

Module 3: Risk Intelligence and Enterprise Decision-Making

- Introduction to risk intelligence and risk analytics.
- Identifying and assessing operational, financial, and strategic risks.
- Developing Key Risk Indicators KRIs.
- Visualizing and monitoring organizational risks.
- Integrating risk intelligence into business planning and decision-making.
- Using analytical models to support risk-based decisions.

Practical Session

- Designing governance, compliance, and risk dashboards.
- Analyzing compliance and risk data.
- Using SQL to identify risk and compliance patterns.
- Applying Python for analytical validation and anomaly analysis.
- Creating executive risk intelligence reports.

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Day 3: Advanced Analytics, Forecasting & AI-Powered Insights

Module 1: Advanced Data Analysis Techniques

- Moving beyond descriptive analytics.
- Statistical analysis and business applications.
- Regression analysis for trend identification.
- Clustering techniques for customer and operational segmentation.
- Identifying hidden patterns and relationships in data.
- Using Python for advanced data analysis.
- Applying analytical techniques to real-world business datasets.

Module 2: Time Series Analysis and Forecasting

- Understanding time-series data.
- Trend, seasonality, and cyclical analysis.
- Forecasting models and techniques.
- Measuring and improving forecast accuracy.
- Using Python to support forecasting and time-series analysis.
- Integrating forecasts into Power BI dashboards.

Module 3: Predictive Analytics for Strategic Forecasting

- Fundamentals of predictive analytics.
- Predictive modeling approaches and business use cases.
- Risk prediction and opportunity identification.
- Scenario analysis and forecasting future outcomes.
- Supporting strategic planning using predictive insights.
- Translating predictive models into business intelligence outputs.

Module 4: AI-Powered Data Analytics, SQL, Python & DAX

- Introduction to Artificial Intelligence in Business Intelligence.
- AI-assisted analytics and automated insight generation.
- Using AI to support data exploration and analytical workflows.
- Leveraging SQL for advanced data querying and preparation.
- Using Python to automate analytical tasks and generate insights.
- Applying AI-assisted techniques to develop and optimize DAX queries and calculations.
- Natural language querying and AI-enhanced reporting.
- Integrating machine learning models with BI platforms.
- Governance and ethical considerations in AI analytics.

Practical Session

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- Building forecasting models.
- Applying Python-based analytics.
- Using SQL for advanced analytical data preparation.
- Developing and optimizing DAX calculations.
- Applying AI-driven analytics tools.
- Developing predictive dashboards and reports.

Day 4: Delivering Strategic Business Insights & Executive Reporting

Module 1: Extracting Insights from Structured and Unstructured Data

- Understanding structured, semi-structured, and unstructured data.
- Techniques for analyzing diverse data sources.
- Text analytics and sentiment analysis fundamentals.
- Combining multiple data sources for comprehensive business insights.
- Using SQL to integrate and analyze business datasets.
- Using Python for advanced data processing and analytical exploration.
- Unlocking deeper insights from enterprise data assets.

Module 2: Business Insight Development and Data Storytelling

- Converting analytical findings into actionable recommendations.
- Building compelling data-driven narratives.
- Aligning insights with business objectives.
- Measuring business impact and value creation.
- Effective communication of analytical outcomes.
- Turning dashboards and analytical results into strategic business decisions.

Module 3: Executive Reporting and Stakeholder Engagement

- Best practices for executive and operational reporting.
- Customizing reports for various stakeholder groups.
- Advanced report sharing, collaboration, and governance.
- KPI reporting frameworks and performance management.
- Designing executive dashboards using Power BI.
- Delivering impactful presentations to decision-makers.
- Communicating technical analytical findings to non-technical stakeholders.

Practical Session

- Developing executive dashboards.
- Creating advanced DAX measures for KPI reporting.

- Combining SQL, Python, and Power BI outputs.
- Building executive reports and management presentations.
- Presenting analytical findings and recommendations.

Day 5: Capstone Project, Executive Presentation & Programme Close-Out

Module 1: Capstone Business Intelligence and Analytics Project

- End-to-end Business Intelligence and Analytics project using a real-world NCC scenario.
- Integration of concepts covered throughout the programme.
- Application of data preparation, visualization, governance, compliance, risk, forecasting, predictive analytics, and AI-driven insights.
- Application of SQL for data extraction and preparation.
- Application of Python for data analysis and advanced analytics.
- Development of DAX queries, measures, and calculations.
- Development of actionable business recommendations based on analytical findings.

Module 2: Presentation of Findings and Recommendations

- Presentation of project outcomes, dashboards, and analytical insights.
- Communication of strategic recommendations to decision-makers.
- Justification of conclusions using data-driven evidence.
- Demonstration of DAX-based calculations and KPI outputs.
- Discussion of implementation approaches and expected business impact.

Module 3: Peer Review, Feedback and Lessons Learned

- Peer evaluation of projects and presentations.
- Sharing of best practices and implementation experiences.
- Discussion of lessons learned and key takeaways.
- Identification of opportunities for improving BI and analytics practices.

Module 4: Programme Wrap-Up and Action Planning

- Review of key concepts from Days 1-5.
- Developing personal and organizational action plans.
- Roadmap for implementing Business Intelligence and Analytics initiatives.
- Emerging trends in BI, Data Analytics, Artificial Intelligence, and Decision Intelligence.
- Course evaluation and participant reflections.

Practical Session

- Capstone project completion and presentation.

- Executive dashboard demonstrations.
- SQL and Python analytical demonstrations.
- DAX query and KPI demonstrations.
- Group discussions and feedback.
- Final assessment and certification requirements, where applicable.

Course Outcomes

By the end of Day 5, participants will be able to:

- Demonstrate mastery of Business Intelligence and Analytics concepts through a practical project.
- Integrate governance, compliance, risk, forecasting, predictive analytics, and AI capabilities into business solutions.
- Use SQL and Python to strengthen advanced data analysis and BI workflows.
- Develop and optimize DAX queries, measures, and calculations for advanced Power BI reporting.
- Develop executive dashboards and strategic reports that support informed decision-making.
- Present data-driven recommendations confidently to senior stakeholders.
- Create actionable plans for implementing analytics-driven improvements within their organizations.

Wins & Losses

Wins

- **Master Advanced BI Tools:** Develop practical expertise in Power BI, SQL, Python, and DAX for advanced business intelligence and analytics.
- **Improve Decision-Making:** Transform complex business data into reliable, actionable insights that support faster and better decisions.
- **Strengthen Data Governance:** Improve data quality, compliance, risk monitoring, and analytical reliability.
- **Boost Predictive Capabilities:** Apply forecasting, predictive analytics, and AI-powered techniques to identify trends, risks, and opportunities.
- **Executive Impact:** Build professional dashboards and reports that communicate strategic insights clearly to senior stakeholders.
- **Practical Portfolio Development:** Complete a real-world capstone project demonstrating integrated BI, analytics, SQL, Python, DAX, and AI capabilities.

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Losses

- **Reduce Data-Driven Guesswork:** Minimize decisions based on incomplete, inconsistent, or poorly analyzed data.
- **Reduce Reporting Inefficiencies:** Minimize manual reporting and repetitive analytical processes through SQL, Python, Power BI, and DAX.
- **Identify Hidden Risks Earlier:** Reduce the likelihood of overlooked compliance gaps, operational risks, and emerging business issues.
- **Avoid Underutilized Data:** Prevent valuable organizational data from remaining unused or disconnected from business decision-making.
- **Reduce Communication Gaps:** Minimize the difficulty of translating complex analytical findings into clear executive-level insights.
- **Avoid Reactive Decision-Making:** Move from relying primarily on historical reporting toward forecasting, predictive analytics, and AI-supported strategic planning.

Conclusion

This advanced programme provides a practical and strategic approach to modern Business Intelligence and Analytics. Participants will progress from data preparation and governance to advanced analytics, forecasting, AI-powered insights, SQL, Python, DAX, executive dashboards, and strategic reporting.

Through hands-on exercises and the final capstone project, participants will gain the practical ability to transform business data into meaningful insights, communicate those insights effectively, and support data-driven organizational decisions.

5 Questions & Answers

1. What is the main purpose of Business Intelligence BI?

Answer: Business Intelligence helps organizations transform raw data into meaningful insights, dashboards, and reports that support better and faster business decision-making.

2. How do SQL and Python support Business Intelligence and Data Analytics?

Answer: SQL is used to extract, query, filter, join, and prepare data, while Python supports advanced analysis, data cleaning, automation, forecasting, and predictive analytics. Together, they strengthen the overall BI workflow.

3. What is the role of DAX in Power BI?

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Answer: DAX Data Analysis Expressions is used to create advanced calculations, measures, calculated columns, KPIs, and analytical logic in Power BI, helping users generate deeper insights from business data.

4. How can AI improve Business Intelligence?

Answer: AI can support automated insight generation, predictive analytics, natural-language querying, forecasting, anomaly detection, and AI-enhanced reporting, helping organizations identify patterns and make more informed decisions.

5. What will participants achieve through the capstone project?

Answer: Participants will apply the programme's concepts to a real-world business scenario by using data preparation, SQL, Python, DAX, visualization, forecasting, predictive analytics, AI, and executive reporting to develop actionable business recommendations.

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