FUTURE PROOF LEARNING - NEP ALIGNED
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ADVANCED CERTIFICATE IN DATA VISUALIZATION & ANALYSIS

DURATION: 240 Hours

TOTAL CREDITS: 8

COURSE SYLLABUS

Objective

The Data Visualization & Analysis course is designed to help the student use Reports to find answers to your business questions. Students will learn how the reporting interface and navigation work, how to run reports to get the answers they are looking for, and how to configure reports for effective decision-making.

Exit Profile

- Create Excel Templates
- Create Dynamic Reports
- Automate Complex Reports
- Create Interactive Dashboards
- Design a Database to support all Reporting requirements
- Create Reports using Business Intelligence tools like Tableau and Power BI
- Data Manipulation
- Data Modelling
- Data Analysis
- Data Communication with Information Visualization
- Data at Scale.

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Career Path

- Data Analyst
- Business Analysts
- Data Visualization Analyst Expert
- Business Intelligence Professionals
- Functional Expert
- Project Managers
- Statisticians & Analysts
- Testing Professionals

Course Outline

Course Name:	Advanced Certificate in Data Visualization & Analysis	Duration:	240 H
Module	Topic	Duration	Total Duration
Module 1	Data Handling	4 H	40 H
	Data Manipulation	7 H	
	Analysis Tools	10 H	
	Auditing & Security	3 H	
	Functions & Formulas	5 H	
	Dashboard Design	6 H	
	Automation	5 H	
Module 2	Macro Basics	8 H	40 H
	VBA Programming	9 H	
	GUI & Forms	10 H	
	File & Data Handling	6 H	
	Debugging	7 H	
Module 3	Getting Started with MS Access	2 H	40 H
	Working with Table Data	2 H	
	Querying a Database	10 H	
	Using Forms for Data Entry	6 H	
	Generating Reports	12 H	
	Designing a Relational Database	7 H	
	Sharing Data Across Applications	1 H	
Module 4	Data Management System	5 H	40 H
	SQL Syntax & Queries	10 H	
	Data Manipulation Language (DML)	5 H	

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	Data Query Language (DQL)	5 H	
	Built-in Functions in SQL	5 H	
	Subqueries and Joins	10 H	
Module 5	Introduction to Power BI	1 H	40 H
	Transforming Data with Power Query	4 H	
	Modeling Data in Power BI	5 H	
	Introduction to DAX	10 H	
	M Language Basics	10 H	
	Visualizing Data with Reports	5 H	
	Creating Interactive Dashboards	5 H	
Module 6	Introduction to Tableau & Data Connection	1 H	40 H
	Navigating Tableau Interface	2 H	
	Chart Types & Data Visualization Techniques	10 H	
	Creating Run-Time Calculations	10 H	
	Data Formatting & Advanced Functions	5 H	
	Filters & Advanced Chart Types	5 H	
	Building Dashboards & Storylines	4 H	
	Publishing Reports & Sharing Insights	3 H	

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Course In Detail

Module – 1

- Working with Multiple Worksheets
  - Linking and Consolidating Data
  - Grouping and Ungrouping Sheets
- Cell Referencing
  - Absolute, Relative, and Mixed References
  - Using Named Ranges
- Working with Data Lists
  - Sorting & Custom Sorting
  - Filtering & Advanced Filtering
- Conditional Formatting
  - Creating Data Bars, Color Scales, and Icon Sets
  - Custom Conditional Formatting Rules
- Data Validation
  - Creating Drop-Down Lists
  - Preventing Duplicate Entries
- What-if Analysis
  - Goal Seek
  - Scenario Manager
  - Data Tables (One & Two Variables)
- Formula Auditing
  - Tracing Precedents & Dependents
  - Error Checking & Evaluating Formulas
- Protection & Security
  - Locking Cells & Protecting Sheets
  - Restricting Editing Access
- G Suite – Excel Integration
  - Importing & Exporting Data between Excel & Google Sheets
  - Collaboration Features
- Formulas & Functions
  - Logical, Text, Date & Time Functions
  - Lookup & Reference Functions (VLOOKUP, XLOOKUP, INDEX-MATCH)
  - Statistical & Financial Functions
- Dashboard Designing (MIS)
  - Creating KPI Indicators

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    - Using PivotTables & PivotCharts
    - Building Interactive Dashboards
- Automation in Excel
    - Introduction to Macros
    - Automating Reports & Repetitive Tasks

Module – 2

- Macro Recording
    - Absolute & Relative Macros
    - Assigning Macros to Buttons
- Visual Basic Editor (VBE)
    - Overview of VBE Window
    - Creating & Running Macros
- Understanding Objects, Methods, Properties, and Variables
    - Using Variables in VBA
    - Defining Functions & Procedures
- Control Structures - Decision Making
    - If-Else Statements
    - Select Case Statements
- Looping Structures
    - For, While, and Do-While Loops
    - Using Loops for Data Processing
- User Forms and GUI Design
    - Creating User Forms
    - Adding Form Controls (Buttons, List Boxes, Combo Boxes)
- Worksheet/Workbook Operations
    - Opening, Closing, and Saving Workbooks Using VBA
    - Automating Data Entry
- Error Handling & Debugging
    - Handling Runtime Errors
    - Using Breakpoints & Debugging Tools

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Module – 3

- Getting Started with MS Access
    - Understanding Database Components
    - Creating and Managing Tables
- Working with Table Data
    - Data Entry & Formatting
    - Data Import & Export Options

- Querying a Database
    - Creating Select, Append, and Delete Queries
    - Using Query Criteria & Parameters
- Using Forms for Data Entry
    - Designing Data Entry Forms
    - Using Form Controls
- Generating Reports
    - Creating Reports with Grouping & Sorting
    - Formatting Reports for Printing
- Designing a Relational Database
    - Primary Keys & Relationships
    - Normalization Concepts
- Sharing Data Across Applications
    - Linking Access with Excel
    - Automating Reports with Access Macros

Module - 4

- Data Management System
    - Understanding RDBMS Concepts
    - Data Storage & Indexing
- SQL Syntax & Queries
    - Writing Basic SQL Queries
    - Understanding Data Types & Constraints
- Data Manipulation Language (DML)
    - Inserting, Updating, and Deleting Records
    - Using Transactions & Rollbacks
- Data Query Language (DQL)
    - Using SELECT, WHERE, and ORDER BY Clauses
    - Aggregation Functions (SUM, AVG, COUNT, etc.)
- Built-in Functions in SQL
    - String & Date Functions
    - Mathematical & Conversion Functions
- Subqueries and Joins
    - Inner, Outer, Left, Right Joins
    - Correlated Subqueries

Module - 5

- Introduction to Power BI
    - Understanding Power BI Interface
    - Importing Data from Multiple Sources
- Transforming Data with Power Query
    - Data Cleaning & Transformation Techniques

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    - Merging & Appending Queries
- Modeling Data in Power BI
    - Creating Relationships Between Tables
    - Using DAX (Data Analysis Expressions)
- Introduction to DAX
    - Writing Basic & Advanced DAX Formulas
    - Time Intelligence Functions
- M Language Basics
    - Custom Functions in M
    - Understanding Query Dependencies
- Visualizing Data with Reports
    - Creating and Customizing Reports
    - Adding Filters & Slicers
- Creating Interactive Dashboards
    - Designing Dynamic Dashboards
    - Adding Drill-Through and Drill-Down Interactivity

Module - 6

- Introduction to Tableau & Data Connection
    - Overview of Tableau Interface
    - Connecting to Excel, SQL, and Cloud Data
- Navigating Tableau Interface
    - Understanding Data Pane & Dimensions
    - Using Filters & Parameters
- Chart Types & Data Visualization Techniques
    - Bar, Line, and Pie Charts
    - Dual-Axis & Combination Charts
    - Treemaps, Heatmaps & Waterfall Charts
- Creating Run-Time Calculations
    - Using Table Calculations
    - LOD (Level of Detail) Expressions
- Data Formatting & Advanced Functions
    - Grouping & Binning Data
    - Clustering & Cohort Analysis
- Filters & Advanced Chart Types
    - Applying Filters to Views
    - Creating Advanced Visuals with Blended Data
- Building Dashboards & Storylines
    - Designing Interactive Dashboards
    - Using Actions to Enhance Interactivity
- Publishing Reports & Sharing Insights
    - Exporting & Embedding Tableau Visualizations
    - Publishing to Tableau Public & Server

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