



CA
PAKISTAN

SYLLABUS

HANDS-ON COURSE ON DATA ANALYTICS AND FIN-TECH

(Applicable with effect from September 2024 Assessments)

Hands-on Course on Data Analytics and Fintech

Competency
Apply enhanced skillset of data management, analysis and business intelligence to respond to the needs of emerging workplace.

	Grid	Minimum Coaching hours	Weightage
A	Financial modeling, forecasting and dashboard reporting using MS. Excel	25	15 – 20
B	Power BI for Data Visualization & Classification	30	30 -40
C	Blockchain	5	5 – 10
D	Python for Data Description and Diagnostics	15	15 – 20
E	Power Automate for Robotics Process Automation	15	15 – 20
	Total	90	100

Syllabus Ref	Contents	Proficiency Level
A	Financial modeling, forecasting and dashboard reporting using MS. Excel	
1	Use database, date, lookup, user define (VBA), conditional and dynamic array functions.	P2
2	Use data validations rules.	P2
3	Use data analysis and modeling tools.	P2
4	Create pivot table.	P2
5	Prepare Dashboards.	P2
6	Make financial models.	P2
B	Power BI	P2
1	Perform Data Extraction, Transformation and Loading (ETL) using Power Query in Power BI.	P2
2	Develop Data insights using Power BI.	P2
3	Perform data visualization techniques using Power BI.	P2
C	Blockchain	
1	Use block explorers to analyze transactions, blocks, NFTs and other information available on the blockchain.	P2
D	Python for Data Description and Diagnostics	
1	Introduction to Python and its libraries.	P1
2	Use Python descriptive and statistical analysis of financial, accounting other business data.	P2
3	Use Python in audit, assurance and related services for evaluating internal controls, gathering evidence and drawing conclusions.	P2

Syllabus Ref	Contents	Proficiency Level
4	Apply statistics tools for predictive modeling using regression and classification analysis.	P2
E	Power Automate for Robotics Process Automation	
1	Use Microsoft Power Automate.	P2
2	Create, execute, share, manage and monitor all the flows.	P2
3	Create flows with conditions, loops, approvals, user input and multiple actions.	P2

Key Examinable Professional Skills

1	Evaluate data and information from a variety of sources and perspectives through research, integration, and analysis.
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Key Examinable Professional Values, Ethics and Attitude

1	Apply an inquiring mind when collecting and assessing data and information
2	Apply critical thinking when identifying and evaluating alternatives to determine an appropriate course of action.
3	Apply fundamental principles of ethics when collecting, generating, storing, accessing, using, or sharing data and information.

Specific Examinable Knowledge Reference

Financial modeling, forecasting and dashboard reporting using MS. Excel	
1	<u>Functions</u> <ul style="list-style-type: none"> Database functions including DSUM, DMIN, DMAX etc. Date functions: NETWORKDAYS, DATEDIF, EDATE etc. Lookup Functions: XLOOKUP, INDEX, MATCH etc. Conditional functions: IF, IFS, SUMIF(S), COUNTIF(S) OFFSET etc. Dynamic array functions: (FILTER, SORT, SORTBY, UNIQUE, SEQUENCE, RANDARRAY)
2	<u>Data validation</u> <ul style="list-style-type: none"> Restricting access for user to input specific data. Creating/selecting items from a list.
3	<u>Data analysis and modeling tools</u> <ul style="list-style-type: none"> Excel tables Advance filter (unique list and criteria based) What if analysis (including Goal seek, data tables, scenario manager)
4	<u>Pivot table</u> <ul style="list-style-type: none"> Add fields to pivot table Adding slicers or timelines Calculated fields and items Data grouping (text/numeric values)

	<ul style="list-style-type: none"> • Pivot charts • PowerPivot and understanding data model and relationships
5	<u>Dashboards</u> <ul style="list-style-type: none"> • Interactive controls to the dashboard • Spin button, scroll bar, combo box, list box, check box, option button • Charts including (bar chart, line charts, pie charts, doughnut charts, combo charts) • Waterfall chart (best for showing incremental data) • Speedometer charts • Dashboards using pivot tables (Sales dashboard) • Dashboards using PowerPivot, KPIs in PowerPivot
6	<u>Financial modelling</u> <ul style="list-style-type: none"> • Model design and layout • Creating assumptions/inputs • Depreciation/amortization schedule • Cost of sales and SG&A expenses schedule • Working capital schedule • Loan/financing schedule • Comprehensive financial statement projection model including (balance sheet, income statement, statement of changes in equity and cash flow statement) • Linking critical outputs on dashboards • Audit sheet • Time series analysis • Sensitivity analysis (including scenario modeling)
Power Bi	
1	<u>Overview of Power BI</u> <ul style="list-style-type: none"> • Key components and their roles • Installing and setting up Power BI Desktop
2	<u>Power BI Desktop Basics</u> <ul style="list-style-type: none"> • Connecting to data sources (Excel, databases, online services) • Transforming and cleaning data with Power Query • Data loading and data model basics
3	<u>Data Modeling in Power BI</u> <ul style="list-style-type: none"> • Understanding normalized and de-normalized data • Create relationships among fact tables and dimension tables • Creating calculated columns and measures with DAX (Data Analysis Expressions)
4	<u>Building Reports in Power BI Desktop</u> <ul style="list-style-type: none"> • Creating visuals (tables, charts, maps etc.) • Formatting and customizing visuals • Working with slicers and filters • Introduction to themes and report design best practices

5	<u>Power BI Service Overview</u> <ul style="list-style-type: none"> • Introduction to Power BI Service • Uploading and sharing reports • Creating dashboards
6	<u>Advanced Data Transformations with Power Query</u> <ul style="list-style-type: none"> • Importing, summarizing, cleaning data • Removing unwanted rows/columns • Dates, numbers, text transformations • Merging queries and append queries • Unpivot columns, pivot columns, • GroupBy, • Conditional columns, Custom columns etc.
7	<u>Advanced Data Modeling and DAX</u> <ul style="list-style-type: none"> • Time intelligence functions in DAX including (MTD, QTD, YTD calculations, comparisons over periods etc.) • Advanced DAX calculations (including Calculate function, Filter functions, Iterator functions, Logical functions, text functions, table manipulation functions etc.) • Handling errors and exceptions in DAX
8	<u>Advanced Visualizations and other tools</u> <ul style="list-style-type: none"> • Custom visuals and marketplace • Advanced formatting and design techniques • Bookmarks • Field parameters • Conditional formatting • Drill through • Calculation groups • Tooltips
9	<u>Power BI Service Advanced Features</u> <ul style="list-style-type: none"> • Publish a report on power bi service; create dashboards, • Mobile layout, • Setting up Row Level Security (RLS), • Adding comments to a Power BI report, • Use Q&A on a dashboard/report in the Power BI service
Blockchain	
1	Features of blockchain technology and its commercial use cases
2	Common types of blockchain technology and how they are used
3	Applications of distributed ledger technology (DLT) and smart contracts
4	Public and private uses of DLTs and smart contracts
5	Use of blockchain in enterprise
6	Distributed systems and alternative consensus
7	Cryptography and SHA256 algorithm
8	Crypto currency, crypto economics and proof-of-stake
9	Block explorers to explore public data on blockchain: blockchain.com, tokenview.io, coinmarketcap.com, etherscan.io

Python	
1	Python and its libraries / packages <ul style="list-style-type: none"> • Numpy • Pandas
2	Python for descriptive and statistical analysis of business data (mean or average, median, quartile, maximum, minimum, range, variance, and standard deviation)
3	Plots, graphs, tables using python and its libraries / packages
4	Correlation, Hypothesis Testing
5	Gartner's Model (Descriptive, diagnostics, predictive and prescriptive analytics)
6	Predictive modeling to analyze financial Statements: Regression, clustering, and classification analysis
7	Python in audit, assurance, and related services for evaluating internal controls and gathering evidence
8	Manipulate and Visualize Data with Python libraries / packages
9	Data Extract, Transform, and Load (ETL) using Python
10	Market Basket Analysis (MBA)
11	Data Analytics Cases on:
	Consumer Demand, Pricing and Revenues
	Customer Value, Segmentation and Share of Wallet
	Product Profitability and Channel Optimization
	Supply Chain Optimization
	Predictive Maintenance
	Operational Efficiency
	Fraud and Risk Assessment
	Business Portfolio Assessment
	Business Valuation Metrics
Power Automate	
1	Flows: sending an email, responding to an email, creating MS Excel files from documents saved in MS Word
2	Troubleshoot flows
3	Recurring flows
4	Incoming emails
5	Variables
6	Data types, input and output variables, variable manipulation and sensitive variables.
7	Connectors
8	UI Flows