Code.Hub

PF13 | Data Engineering & Business Intelligence Scope

Thematic Units	Topic & Content	Training Hours
Software Engineering Aspects & Intro to SQL Server	- Tooling & Collaboration principles, Version Control & GIT - A quick hands-on intro to SQL Server - SQL Server & SSMS Overview & Installations - Intro to SQL	4
Data, Data Stores & Big Data	- Data & Data Management Systems - Databases & Data Stores (SQL vs NoSQL) - Data Modeling, ERDs & Normalization - SQL Fundamentals (basic operations, joins)	4
Data Warehouses	- Aggregation Functions - Subqueries, Optimization - Indexes, stored procedures **- Project Release**	4
Business Intelligence Ecosystem	- Professionalism & SE roles and Industry reality - Managing the Agile Data Project & Scrum - Business Intelligence Overview & Key Components - Data Warehouses & Data Marts - Data Integration Architecture & ETL Principles	4
Data Integration with SQL	- Data Warehousing and ETL Case Study with SQL - Creating Facts, Measures, Dimensions and Hierarchies - Data Integration requirements, considerations, compliance - Data Profiling, Cleaning, Conforming, Loading, Error & exception handling - Design a data warehouse schema	4
	- Load data and query a data warehouse - Staging, Dimension, Time Dimension - Measurements, Fact - Star schema, Snowflake, Constellation	4
Data Integration with SSIS	- SSIS Introduction & Basic Concepts - Creating SSIS Packages - Control Flow and Data Flow Basics - Checkpoints, Deployment, Evend Handlers	4
	- Data Flow Tasks - Control Flow Tasks - Deployment	4
Incremental Data Loading & Slowly Changing Dimensions	- Full vs. incremental loads; identifying new and modified records using timestamps, watermarks, and change tracking concepts. - Slowly Changing Dimensions: Type 1 overwrites and Type 2 historical tracking; surrogate keys, effective dates, and current-record flags. - Reliable ETL: handling deletions, late-arriving data, duplicate prevention, and safe reruns. - Hands-on SQL Server lab: incrementally load customer and sales data, preserve customer history, and link facts to the correct dimension version.	4
Introduction to Microsoft Azure	- Intro to Azure - Azure accounts, Subscriptions - VMs, VNets, Storage Account - Azure Data Lake Storage	4
	- Azure Databases - Azure SQL DB Connection with Local SSMS - ETL from local SQL Server to Azure datawarehouse through SSIS	4
Data Analysis & Business Analytics	- Power BI Desktop Basics & Interface - Import vs. Direct Query - Cleaning and transforming data - Combining Data - Building the Data Model	4
Agile Framework & Methodologies	- Introduction to Agile - Agile Values & Principles - Agile Methodologies - Introduction to Scrum Framework - Scrum Artifacts, Ceremonies & Roles	4
Data Analysis & Business Analytics	Visualizing Data in Power BI - Reports & Dashboards Principles - Power BI visuals - Configurations & formatting - Filtering, sorting, slicing, drilling through - Detailed examples: a) Line charts b) Stacked area charts c) Maps	4
	Analytics in Power BI - Statistical Summary – mean, median, min, max with tables & cards - Outlier Detection – scatter/box plots to highlight anomalies - Grouping & Binning – segmenting data into ranges - Clustering – automatic segmentation with Power BI clustering	4
	Analyzing Data Trends & Power BI AI - Trend lines, rolling averages. - Seasonality (daily/weekly patterns). - Forecasting with Power BI built-in tools - AI in Power BI	4
Power BI Semantic Modeling & DAX	- Model relationships, cardinality, filter direction, and date tables. - Measures vs. calculated columns; DAX fundamentals; row context and filter context; CALCULATE, FILTER, and iterator functions. - Time intelligence: year-to-date, previous-period comparisons, year-over-year growth, and rolling averages. - Hands-on lab: implement and validate business KPIs, including revenue, margin, growth, and contribution percentages.	4
BI Deployment, Security & Operational Reliability	- Publishing to Power BI Service; workspaces, apps, distribution, and access management. - Row-level security: design roles, implement access rules, and test user visibility. - Data gateways, credentials, scheduled refresh, incremental refresh concepts, and troubleshooting refresh failures. - Data quality and reconciliation checks: completeness, duplicates, missing dimension keys, and source-to-report totals. - Hands-on lab: publish the project, configure security and refresh, and complete an operational handover checklist.	4
Project Development	Project Development Data Engineering on Azure Azure Data Factory	4
Presentations	Presentations Each team presents their project	4
	Total Training Hours	**80**