

# **Bundle Course – BI TOOLS**

## **Bundle Course – BI Tools**

### **Tableau – Course Syllabus**

- Tableau History, Interface and Components
- Connecting to databases and preparing data
- Data Refresh and Blending
- Sorting
- Grouping
- Creating Sets
- Filters
- Filter shelves
- Quick Filter

- Parameters
- Formatting
- Trend Lines and reference lines
- Drills
- Introduction to Dashboards and Story
- Building dashboards
- Layouts and Formatting
- Interactivity
- StoryPoints
- Maps
- Background Images
- Calculations Syntax
- Modifying Table calculations
- Aggregations and LOD Expressions
- Advanced Charts and graphs (Pareto, Waterfall, Funnel,..)
- Histograms
- Tree maps and bubble charts
- Best practices
- Case Studies

## **Power BI Syllabus**

### **Power BI Complete Introduction**

- Power BI Introduction
- Data Visualization, Reporting
- Business Intelligence(BI), Traditional BI, Self-Serviced BI
- Cloud Based BI, On Premise BI
- Power BI Products
- Power BI Desktop (Power Query, Power Pivot, Power View)
- Flow of Work in Power BI Desktop
- Power BI Report Server, Power BI Service, Power BI Mobile
- Flow of Work in Power BI / Power BI Architecture
- A Brief History of Power BI
- 

### **PBI Desktop Installation, PBI Desktop &Service Overview**

- Power BI Desktop Installation
- Building Blocks of Power BI
- Datasets, Visualizations, Reports, Dashboards, Tiles
- Power BI Desktop User Interface
- Fields Pane, Visualizations pane, Ribbon, Views, Pages Tab, Canvas
- Overview of Power Query / Query Editor – Extract, Transform & Load Data
- Connecting to Data Sources, Establish connection to the Excel source
- Importing Data into Power BI or Query Editor
- Transforming the Data using Power Query
- Model the Data using Power Pivot – Relationship View
- Creating New Measures and New Columns using DAX – Data View
- Visualizing the Data using Power View and Power Maps – Report View
- Saving and Publishing the Visuals or Reports

- Logon to Power BI Service
- View the Reports in PBI Service and Share the reports

## **Power Query**

### **Introduction to Power Query – Extract, Transform & Load**

- Data Transformation, Benefits of Data Transformation
- Shape or Transform Data using Power Query
- Overview of Power Query / Query Editor, Query Editor User Interface
- The Ribbon (Home, Transform, Add Column, View Tabs)
- The Queries Pane, The Data View / Results Pane, The Query Settings Pane, Formula Bar
- Advanced Editor – Complete ETL Code
- Saving Your Work – Applying ETL Changes – Loading into Power Pivot Model
- Power Query Conceptually

### **Datatypes and Filters in Power Query**

- Datatypes, Changing the Datatype of a Column
- Filters in Power Query
- Auto Filter / Basic Filtering
- Filter a Column using Text Filters
- Filter a Column using Number Filters
- Filter a Column using Date Filters
- Filter Multiple Columns

### **Inbuilt Column Transformations**

- Remove Columns / Remove Other Columns
- Name / Rename a Column
- Reorder Columns or Sort Columns

- Add Column / Custom Column
- Split Columns
- Merge Columns
- PIVOT, UNPIVOT Columns
- Transpose Columns

### **In built Row Transformations**

- Header Row or Use First Row as Headers
- Keep Top Rows, Keep Bottom Rows
- Keep Range of Rows
- Keep Duplicates, Keep Errors
- Remove Top Rows, Remove Bottom Rows, Remove Alternative Rows
- Remove Duplicates, Remove Blank Rows, Remove Errors
- Group Rows / Group By

### **Combine Queries (Append Queries & Merge Queries)**

#### **Append Queries / Union Queries**

- Append Queries
- Append Queries as New
- Append 2 or more files individually with different queries
- Appending multiple files of same type from a folder using single query
- Query Options
- Copy Query, Paste Query
- Delete Query, Rename Query
- Enable Load, Include in report Refresh
- Duplicate Query, Reference Query
- Move to Group, Move Up, Move Down

### **Merge Queries / Join Queries**

- Merge Queries, Merge Queries as New
- Default Types of Joins / Join Kinds / Merge Type
- Left Outer (all from first, matching from second)
- Right Outer (all from second, matching from first)
- Full Outer (all rows from both)
- Inner (only matching rows)
- Left Anti (rows only in first)
- Right Anti (rows only in second)
- Cartesian Join or Cross Join

### **Power Pivot**

#### **Power BI Data Modeling – Relationship View**

- Data Modeling Introduction
- Relationship, Need of Relationship
- Relationship Types / Cardinality in General
- One-to-One, One-to-Many (or Many-to-One), Many-to-Many
- AutoDetect the relationship, Create a new relationship, Edit existing relationships
- Make Relationship Active or Inactive
- Delete a relationship
- Cross filter direction (Single, Both), Assume Referential Integrity

#### **Enhancing the Data Model – DAX**

- What is DAX, Calculated Column, Measures
- DAX Table and Column Name Syntax

- Creating Calculated Columns, Creating Measures
- Implicit Vs Explicit Measures
- Calculated Columns Vs Measures
- DAX Syntax & Operators
- DAX Operators
- Types of Operators
- Arithmetic Operators, Comparison Operators, Text Concatenation Operator, Logical Operators

### **DAX Functions Categories**

- Date and Time Functions
- Logical Functions
- Text Functions
- Math & Statistical Functions
- Filter Functions
- Time Intelligence Functions

### **DAX Date & Time Functions**

- YEAR, MONTH, DAY
- WEEKDAY, WEEKNUM
- FORMAT (Text Function) à Month Name, Weekday Name
- DATE, TODAY, NOW
- HOUR, MINUTE, SECOND, TIME
- DATEDIFF, CALENDAR
- Creating Date Dimension Table

### **DAX Text Functions**

- LEN, CONCATENATE (&)
- LEFT, RIGHT, MID
- UPPER, LOWER
- TRIM, SUBSTITUTE, BLANK

### **DAX Logical Functions**

- IF
- TRUE, FALSE
- NOT, OR, IN, AND
- IFERROR
- SWITCH

### **DAXMath and Statistical Functions**

- INT
- ROUND, ROUNDUP, ROUNDDOWN
- DIVIDE
- EVEN, ODD
- POWER, SIGN
- SQRT, FACT
- SUM, SUMX
- MIN, MINX
- MAX, MAXX
- COUNT, COUNTX
- AVERAGE, AVERAGEX
- COUNTROWS, COUNTBLANK

### **DAX Filter Functions**

- CALCULATE



- ALL
- RELATED

### **DAX Time Intelligence Functions**

- Time Intelligence Introduction
- TOTALMTD, TOTALQTD, TOTALYTD
- PREVIOUSDAY, PREVIOUSMONTH, PREVIOUSQUARTER, PREVIOUSYEAR
- NEXTDAY, NEXTMONTH, NEXTQUARTER, NEXTYEAR
- SAMEPERIODLASTYEAR
- YOY Growth
- MOM Growth

### **Power View**

#### **Report View / Power View**

- Report View User Interface
- Fields Pane, Visualizations pane, Ribbon, Views, Pages Tab, Canvas
- Visual Interactions
- Interaction Type (Filter, Highlight, None)
- Visual Interactions Default Behavior, Changing the Interaction

#### **Filters in Power View**

- Filter Types
- Visual Level Filters, Page Level Filters, Report Level Filters, Drill Through Filters
- Filter Sub Types
- Basic Filtering, Advanced Filtering, Top N, Relative Date Filtering
- Numeric field filters, Text field filters, Date and Time field Filters

### **Grouping, Binning & Sorting**

- Grouping and Binning Introduction
- Using grouping, Creating Groups on Text Columns
- Using binning, Creating Bins on Number Column and Date Columns
- Sorting Data in Visuals
- Changing the Sort Column, Changing the Sort Order
- Sort using column that is not used in the Visualization
- Sort using the Sort by Column button

### **Hierarchies and Drill-Down Reports**

- Hierarchy Introduction, Default Date Hierarchy
- Creating Hierarchy, Creating Custom Date Hierarchy
- Change Hierarchy Levels
- Drill-Up and Drill-Down Reports
- Data Actions, Drill Down, Drill Up, Show Next Level, Expand Next Level
- Drilling filters other visuals option

### **Power BI Visualizations**

- Visualizing Data, Why Visualizations
- Visualization types, Field Wells
- Visuals for Filtering, Visualizing Categorical Data, Visualizing Trend Data
- Visualizing KPI Data, Visualizing Tabular Data, Visualizing Geographical Data
- Leveraging Power BI Custom Visuals

### **Visuals for Filtering**

- Slicer Visualization
- When to use a Slicer

- Create and format Slicer Visualization
- Hierarchy Slicer (Custom Visualization)
- When to use a Hierarchy Slicer
- Create and format Hierarchy Slicer
- Advantages of Hierarchy Slicer

### **Visualizing Categorical Data**

- Create and Format Bar and Column Charts
- Create and Format Stacked Bar Chart Stacked Column Chart
- Create and Format Clustered Bar Chart, Clustered Column Chart
- Create and Format 100% Stacked Bar Chart, 100% Stacked Column Chart
- Create and Format Pie and Donut Charts
- Create and Format theTree Map Visual
- Create and Format Scatter Charts

### **Visualizing Trend Data**

- Line and Area Charts
- Create and Format Line Chart, Area Chart, Stacked Area Chart
- Combo Charts
- Create and Format Line and Stacked Column Chart, Line and Clustered Column Chart
- Create and Format Ribbon Chart, Waterfall Chart, Funnel Chart

### **Visualizing KPI Data**

- Create and Format Gauge Visual, KPI Visual
- Create and Format Card Visualization, Multi Row Card

## **Visualizing Tabular Data, Geographical Data & R Script Visual**

- Create and Format Table Visual, Matrix Visualization
- Create and Format Map Visual, Filled Map Visual, Arc GIS Maps Visual
- Create and Format R Script Visual

## **Power BI Service**

### **Power BI Service Introduction**

- Power BI Service Introduction, Power BI Cloud Architecture
- Creating Power BI Service Account, SIGN IN to Power BI Service Account
- Publishing Reports to the Power BI service, Import / Getting the Report to PBI Service
- My Workspace / App Workspaces Tabs
- DATASETS, WORKBOOKS, REPORTS, DASHBOARDS
- Working with Datasets, Creating Reports in Cloud using Published Datasets
- Power BI Datasets Live Connection using Desktop
- Working with Workbooks, working with Reports, Sharing Reports

### **Dashboards Development**

- Creating Dashboards
- Pin Visuals and Pin LIVE Report Pages to Dashboard
- Advantages of Dashboards
- Interacting with Dashboards
- Adding Tiles to Dashboards
- Web Content, Image, Text Box, Video
- Formatting Dashboard
- Sharing Dashboard

## **Data Gateways**

- Introduction to Data Gateways
- How Data Gateways work
- Connect to an on premise Data Source by using a Data Gateway
- Download Data Gateway
- Installing a Data Gateway
- Types of Gateways
- On-premises Data Gateway, On-premises Data Gateway (personal mode)
- Manage Data Gateway
- Add and Remove Administrators
- Add Data Source, Add or Remove Users to a Data Source
- Refresh **On Premise** Data
- Configuring Automatic Refresh using Schedules

## **Collaboration in Power BI using App Workspace**

- Introduction to App Workspaces
- Create an App Workspace
- Add Members to App Workspace to Collaborate
- App Workspace Access
- Admin, Member, Contributor

## **Sharing Power BI Content using Apps and Content Packs**

- Introduction to App
- Publish an App
- Update a Published App
- Manage Content in App
- Include in App, Exclude in App

- Sharing App
- Entire Organization, Specific individuals or group
- Un publishing an App
- Content Pack Introduction
- Create Content Pack
- Sharing Content Packs
- Specific Groups, My Entire Organization
- Selecting the Content / Items to Publish or Share

### **Row Level Security in Power BI**

- Introduction to Row Level Security
- Row Level Security (RLS) with DAX
- Manage Roles, Creating Roles, Testing Roles
- Adding Members to Roles in Power BI Service
- Dynamic Row Level Security
- Creating Users Table and Adding to the Model
- Capturing users using UserName () or UserPrincipalName () DAX Functions

### **SAP BUSINESSOBJECTS BUSINESS INTELLIGENCE**

SAP BusinessObjects (BO) Business Intelligence is a reporting tool offered by SAP. SAP BO offers intelligent solutions that can be made use of by people ranging from analysts and other people who work with information to CEO's.

#### **1. Introduction:**

- Understanding BusinessObjects Enterprise
- What is BusinessObjects Enterprise?
- Working with SAP BO Launchpad (Infoview)

## **2. SAP Business Objects Web Intelligence and BI Launch Pad 4.1**

- SAP Business Objects Dashboards 4.1
- BI launch pad: What's new in 4.1
- Restricting data returned by a query
- Enhancing the presentation of data in reports
- Formatting reports
- Calculating data with formulas and variables
- Using multiple data sources
- Analyzing data
- Managing and sharing Interactive Analysis documents
- Reporting from Other Data Sources
- Introducing Web Intelligence
- Accessing corporate information with Web Intelligence
- Understanding how universes allow you to query databases using everyday business terms.
- Managing documents in InfoView
- Viewing a Web Intelligence document in InfoView
- Setting Info View Preferences
- Creating Web Intelligence Documents with Queries
- Getting new data with Web Intelligence
- Creating a new Web Intelligence document
- Modifying a document's query
- Working with query properties
- Restricting Data Returned by a Query
- Modifying a query with a predefined query filter
- Applying a single-value query filter
- Using prompts to restrict data
- Using complex filters
- Displaying data in tables and charts
- Presenting data in free-standing cells
- Enhancing the Presentation of Reports
- Using breaks, calculations, sorts and report filters
- Ranking data to see top or bottom values
- Using alerter to highlight information
- Organizing a report into sections
- Copying data to other applications
- Alternative Query Techniques Using Combined Queries Using Sub-Queries
- Creating a Query based on another Query

- Character and Date String Functions Using the character string functions
- Concatenating different data types Using date functions
- Using If Logic
- Grouping data using If() logic
- Using If() to modify calculation behaviour
- Advanced Reporting Features Formatting breaks
- Creating custom sorts
- Displaying document data in free-standing cells
- Alternative Query Techniques Defining Combined Query Types Using Combined Queries
- Using Sub-Queries
- Creating a Query on a Query
- Character and Date String Functions Understanding Character Strings
- Using Date Functions User-Defined Objects Creating User Objects
- Using a User Object in a Query
- Editing a User Object Deleting a User Object Storing a User Object
- Grouping Data

### **3. Information Design Tool 4.0**

- What is the Information Design Tool (IDT)
- Create a project
- Create a connection to a relational database (Single and Multiple databases)
- Create the data foundation with Single & Multiple databases
- Define the different types joins in a data foundation
- Create a business layer
- Create folders and objects
- Resolve Loops and Use alias
- Resolve Loops Use contexts
- Resolving the fan traps and Chasm traps problem
- Define data restrictions
- Work with LOVs
- Use Parameters restrict data
- Use @functions also Aggregate Awareness
- Create Derived Tables and Index Awareness
- Maintain universes
- Deploy and manage and maintain universes



#### **4. Universe Designer Tool 4.0**

- Understanding Business-Objects Universes.
- Understanding how universes allow users to query databases using their everyday business terms.
- Creating Universe Connections.
- The course database and universe.
- Creating the universe.
- Building and populating the Universe Structure.
- Defining joins in a universe.
- Creating Dimension Objects.
- Understanding classes and objects.
- Creating Measure Objects.
- Understanding measure objects.
- Using List of Values.
- Resolving Loops.
- Resolving loops using aliases.
- Resolving loops using contexts.
- Chasm traps and Fan traps.
- Restricting the data returned by objects.
- Using Functions with Objects.
- Using @ Functions.
- Using Hierarchies.
- Working with hierarchies.
- Aggregate Awareness.
- Derived Tables
- Securing Universes.
- Managing Universes

#### **5. SAP Business Objects Dashboards 4.0 (Crystal Xcelsius 2011)**

- Crystal Xcelsius Overview
- Creating Dashboards using Query As A Web Service (QAAWS) and Live Office
- Create Drill Down dashboard reports
- What's new in SAP Business Objects Dashboards 4.0
- Creating a Visualization
- Producing interactive visualizations
- Getting around in Xcelsius

- Working with your Excel workbook
- Visualizing data with charts
- Using Xcelsius Components
- Formatting a Visualization
- Applying formatting options
- Using themes and templates to apply formatting
- Adding Interactivity to a Visualization
- Using selectors
- Adding dynamic visibility
- Using live data sources
- Connecting to BO Universes using Query as a Web Service
- Using Live Office data
- Creating Complex dashboards
- 

## **6. SAP Crystal Reports 2011**

- Creating reports
- Selecting records
- Organizing data on reports
- Formatting & section formatting
- Creating basic and complex formulas
- Using variables
- Using report templates
- Applying conditional reporting
- Building parameterized and specialized reports
- Summarizing data with cross tabs
- Using report sections
- Representing data visually
- Managing reports
- Distributing reports
- Using repository and repository data sources
- Report processing
- Linking Crystal Reports to Webi reports
- Drill down reports