

Branch Name:	Management (Business Analytics)
Program Code:	MS301
Course Name:	Data Visualization I – Microsoft Power BI
Course Code:	2MS3010841T
Pre-requisite Course:	Basics of computer application, MS Office.

Course Objectives:

- 1) To aware students about the basics of Power BI
- 2) To provide ideas about reports and filters in Power BI
- 3) To make students understand visualization basics
- 4) To give an overview of charts and maps
- 5) To explore data management with Power BI

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
4	-	-	4	60	40	-	-	100

Subject Contents:

Sr No.	Topic	Total Hours	Weightage (%)
1	Introduction Introduction To Power BI – Need, Importance Power BI – Advantages And Scalable Options History – Power View, Power Query, Power Pivot Power BI Data Source Library And DW Files Cloud Collaboration And Usage Scope Business Analyst Tools, MS Cloud Tools Power BI Installation And Cloud Account Power BI Cloud And Power BI Service Power BI Architecture And Data Access On-Premise Data Access And Microsoft On Drive Power BI Desktop – Installation	10	20
2	Reports & Auto filters Report Design With Legacy & .DAT Files Report Design With Database Tables Understanding Power BI Report Designer Report Canvas, Report Pages: Creation, Renames Report Visuals, Fields And UI Options Experimenting Visual Interactions, Advantages Reports With Multiple Pages And Advantages Pages With Multiple Visualizations. Data Access PUBLISH Options And Report Verification In Cloud “GET DATA” Options And Report Fields, Filters Report View Options: Full, Fit Page, Width Scale Report Design Using Databases & Queries Query Settings And Data Preloads Navigation Options And Report Refresh Stacked Bar Chart, Stacked Column Chart Clustered Bar Chart, Clustered Column Chart Adding Report Titles. Report Format Options Focus Mode, Explore And Export Settings	10	20

3	Visualization Power BI Design: Canvas, Visualizations And Fields Import Data Options With Power BI Model, Advantages Direct Query Options And Real-Time (LIVE) Data Access Data Fields And Filters With Visualizations Visualization Filters, Page Filters, Report Filters Conditional Filters And Clearing. Testing Sets Creating Customized Tables With Power BI Editor General Properties, Sizing, Dimensions, And Positions Alternate Text And Tiles. Header (Column, Row) Properties Grid Properties (Vertical, Horizontal) And Styles Table Styles & Alternate Row Colors – Static, Dynamic Sparse, Flashy Rows, Condensed Table Reports. Focus Mode Totals Computations, Background.	10	20
4	Advance Visualization tools CHART Report Types And Properties Stacked Bar Chart, Stacked Column Chart Clustered Bar Chart, Clustered Column Chart 100% Stacked Bar Chart, 100% Stacked Column Chart Line Charts, Area Charts, Stacked Area Charts Line And Stacked Row Charts Line And Stacked Column Charts Waterfall Chart, Scatter Chart, Pie Chart Field Properties: Axis, Legend, Value, Tooltip Field Properties: Color Saturation, Filters Types Formats: Legend, Axis, Data Labels, Plot Area Data Labels: Visibility, Color And Display Units Data Labels: Precision, Position, Text Options Analytics: Constant Line, Position, Labels Working With Waterfall Charts And Default Values Modifying Legends And Visual Filters – Options Map Reports: Working With Map Reports Hierarchies: Grouping Multiple Report Fields Hierarchy Levels And Usages In Visualizations Preordered Attribute Collection – Advantages Using Field Hierarchies With Chart Reports Advanced Query Mode @ Connection Settings – Options Direct Import And In-Memory Loads, Advantages	10	20
5	Data Management with hierarchies & drill down Hierarchies And Drilldown Options Hierarchy Levels and Drill Modes – Usage Drill-Thru Options With Tree Map And Pie Chart Higher Levels And Next Level Navigation Options Aggregates With Bottom/Up Navigations. Rules Multi Field Aggregations and Hierarchies in Power BI Drilldown, Show next level, Expand to next level, See Data And See Records Options. Differences Toggle Options with Tabular Data. Filters Drilldown Buttons And Mouse Hover Options @ Visuals Dependent Aggregations, Independent Aggregations Automated Records Selection With Tabular Data Report Parameters: Creation And Data Type Available Values And Default Values. Member Values Parameters for Column Data And Table / Query Filters Parameters Creation – Query Mode, UI Option Linking Parameters To Query Columns – Options Edit Query Options And Parameter Manage Entries Connection Parameters And Dynamic Data Sources Synonyms – Creation And Usage Options	10	20

Text Books:

Sr. No.	Books
1	Microsoft Power BI Dashboards Step by Step, First Edition, by Pearson
2	Analyzing Data with Microsoft Power BI and Power Pivot for Excel. by Ferrari Alberto, Russo Marco, PHI LEARNING PVT. LTD. MICROSOFT PRESS

Reference Books:

Sr. No.	Books
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1	Mastering Microsoft Power BI: Expert techniques for effective data analytics and business intelligence, Brett Powell ,Packt Publishing
2	Microsoft Power BI Complete Reference: Bring your data to life with the powerful features of Microsoft Power BI, by Devin Knight, Brian Knight, Mitchell Pearson, Manuel Quintana, Brett Powell, Packt Publishing Limited

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Understand the Fundamentals of Power BI	Understand
CLO2	Develop and Design Interactive Reports	Create
CLO3	Implement Effective Data Visualization Techniques	Apply
CLO4	Leverage Advanced Visualization Tools	Evaluate
CLO5	Manage Data with Hierarchies and Drill-Down Features	Apply
CLO6	Enhance Data Management and Query Processing	Apply

Mapping of CLOs with Pos & PSOs

Course Learning Outcomes	Program Outcomes (POs)								Program Specific Outcomes (PSOs)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2
CLO1	H		H				H		H	H
CLO2		H	H					H	H	
CLO3	H	H				L			L	H
CLO4			M			M	H		M	M
CLO5	H	M				M		L	M	
CLO6			H		H	M			M	L

H: High, M: Medium, L: Low
