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| **PROGRAM** | **Master of Business Administration**  |
| **SEMESTER**  | **IV** |
| **COURSE TITLE** | **Data Visualization and Analytics using Power BI** |
| **COURSE CODE** | **04MB0429** |
| **COURSE CREDITS** | **3** |
| **COURSE DURATION** | **42** |

**COURSE OUTCOMES:**

* Understand BI process and application of MS-Power BI in business analytics
* Apply the software knowledge to cleanse and transform data and build relational databases
* Analyze data through a variety of basic and advanced visualization tools available in Power BI
* Apply advanced data analysis tools such as DAX expressions
* Build Business Intelligence reports with cutting-edge visuals and analyses

**COURSE CONTENTS:**

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| **Unit No** | **Unit / Sub Unit** | **Sessions** |
| **I** | **Introduction to Business Intelligence and Power BI**Understanding the business intelligence (BI) process, BI and Power BI, Power BI parts and pieces, The Power BI architecture – Power BI Desktop, Power BI Service, Power BI Report Server, Power BI Mobile App, installation and overview of the interface**Interacting with Power BI Desktop**Opening a Power BI report/ preparing an Environment, working with single and multiple report items, altering a report (slicer, filter), navigating through Power BI reports | 8 |
| **II** | **Building Data Models**: Gathering data – Get data, Power BI connection types, Transforming data, The Power BI Query Editor, Shaping and Cleansing Data, Loading Transformed Data, Combining Datasets, creating intermediate tables, building relationships, creating a tabular model, formatting-hierarchies, groups and bins**Creating Power BI Visuals-I:** Basic visuals, Column chart, slicer, Tables and Matrix visualization, Cards and Multi-row cards, Pie, Donut, TreemapBasic formatting of visuals  | 10 |
| **III** | **Creating Power BI Visuals-II:**Guage chart (highlighting performace wrt set target)Exploring Interactivity with different types of slicer (horizintal-list, dropdown, range), Scatter plot (play-axis: chart in motion), Drill through feature, Geographic visualizations-bing map, filled map, shape map, Other visual elements (text boxes, images and shapes)**Visual Formatting:** page-specific and chart specific, advanced formatting (conditional formatting, data bars), visualization analytics tab, advanced interactivity and custom visualization-changing interactivity from highlights to filters in report settings, Synchronizing slicers, Bookmarks, Buttons | 10 |
| **IV** | **Measures and Calculated Columns**: Calculated Columns, Measures- default summarization, explicit measures, measures and context, time analytics, row-by-row calculations, the FILTER() function, DAX variables**DAX Language Reference:** Dax Operators-comparison operators, arithmetic operators, text operators, logical operators, Dax functions- Modifying Context, Time-valued functions, aggregate functions, DAX functions and time analytics, Parent/Child relationships, Additional DAX functions | 8 |
| **V** | **Additional Power BI Desktop Features:**Model features- Synonyms, linguistic schemas, display folder, What-if parametersPerformance Analyzer- Capturing performance information, viewing the DAX QueryImport and Export- Excel Workbook content, Power BI Templates | 6 |

**EVALUATION:**

The students will be evaluated on a continuous basis and broadly follow the scheme given below:

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|  | **Component** | **Weightage** |
| A | Continuous Evaluation Component (Assignments / Presentations/ Quizzes / Class Participation/ etc.) | 20% (C.E.C.) |
| B | Internal Assessment (MCQ) | 30% (I.A.) |
| C | End-Semester Practical Examination | 50% (External Assessment) |

**SUGGESTED READINGS:**

**Text Books:**

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| --- | --- | --- | --- | --- |
| **Sr. No** | **Author/s** | **Name of the Book**  | **Publisher** | **Edition and Year** |
| T-01 | Brian Larson | Data Analysis with Microsoft Power BI | McGraw-Hill Publications | 1st Edition, 2020 |
| T-02 | Devin Knight, Brian Knight, Mitchell Pearson, Manuel Quintana and Brett Powell | Microsoft Power BI Complete Reference | Packt Publishing | 1st Edition, 2018 |

**Reference Books:**

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| --- | --- | --- | --- | --- |
| **Sr. No** | **Author/s** | **Name of the Book**  | **Publisher** | **Edition and Year** |
| R-01 | Greg Deckler  | Learn Power BI: A beginner's guide to developing interactive business intelligence solutions using Microsoft Power BI  | Packt Publishing  | 1st Edition, 2019.  |
| R-02 | Mitchell Pearson  | Microsoft Power BI Quick Start Guide: Build dashboards and visualizations to make your data come to life  | Packt Publishing | 1stnd Edition, 2018.  |