Sant Gadge Baba Amravati University, Amravati

Part A

Faculty: Science and Technology

Programme: Bachelor of Computer Application (BCA)

Part B

Syllabus Prescribed for 3 Year BCA UG Programme

Programme: Bachelor of Computer Application (BCA)

Semester: V

Code of the Course/Subject	Title of the Course/Subject	(Total Number of Periods)
5BCAOE3	Power BI	60 Periods

COs:

1. Gain a solid understanding of what Power BI is and how it fits into the world of data analysis and visualization.

2. Learn how to import, clean, and transform data from various sources to make it suitable for analysis in Power BI.

3. Master the art of creating data models in Power BI, including defining relationships between tables and creating calculated columns and measures.

4. Develop the skills to create compelling and interactive data visualizations, such as charts, graphs, maps, and tables, to convey insights effectively.

5. Learn to build interactive dashboards and reports that provide a clear and actionable view of data.

Unit	Content
Unit I	**Introduction to Power BI:** Overview of Business Intelligence (BI), Introduction to Power BI and its components, Installing and setting up Power BI Desktop. **Data Preparation and Transformation:** Connecting to various data sources (e.g. Databases, Excel, Web services), Data loading and transformation using Power Query Editor, Data cleansing and shaping techniques. **(12 periods)**
Unit II	**Data Modeling:** Understanding data models in Power BI, Creating relationships between tables, DAX (Data Analysis Expressions) basics for calculations. **Data Visualization:** Building basic visualizations (e.g., charts, tables, matrices), Customizing and formatting visuals, Creating interactive reports and dashboards. **(12 periods)**
Unit III	**Advanced Data Modeling and DAX:** Advanced DAX functions for complex calculations, Time intelligence calculations, Measures and calculated columns. **(10 periods)**
Unit IV	**Power BI Service and Data Sharing:** Publishing reports to Power BI Service, Sharing and Collaboration options, Power BI Mobile app usage. **Data Security and Governance:** Role-level security in Power BI, Data lineage and auditing, Best practices for data governance. **(11 periods)**
Unit V	**Advanced Topics:** Power Query M language for advance data transformations, Custom visuals and extensions, Power BI integration with other tools (e.g., Azure, SharePoint) **(11 periods)**

Cos:

1. Understand and apply DAX functions to perform advance calculations and create custom measures in Power BI.

2. Explore the capabilities of Power Query for data transformation and data source connectivity.

3. Learn how to publish your reports and dashboards to the Power BI service, and share them securely with others.

4. Understand how to implement data security and access control measures within Power BI.

**Activities	1. Creating comprehensive reports and dashboards 2. Working on a final project to apply their knowledge 3. Presentation of the project and insights gained **(4 periods)**

Course Material / Learning Resources

Text books:

1. "Power BI Step-by-Step" by Mr. Grant Gamble

2. "Analyzing Data with Power BI and Power Pivot for Excel" by Alberto Ferrari and Marco Russo

3. "Power BI Cookbook" by Brett Powell

4. "Power BI for Data Science" by Debarchan Sarkar and Brett Powell

Reference Books:

1. "The Definitive Guide to DAX: Business intelligence for Microsoft Power BI, SQL Server Analysis Services, and Excel" by Alberto Ferrari and Marco Russo

2. "Power BI Desktop and the Power BI Service: Business Intelligence with Power Pivot and Power Query" by Ken Getz and Michael Alexander

3. "M is for (Data) Monkey: A Guide to the M Language in Excel Power Query" by Ken Puls and Miguel Escobar

4. "Dashboarding and Reporting with Power BI Desktop and Excel" by Paul Turley

Any pertinent media (recorded lectures, YouTube, etc.) if relevant:

1. https://www.youtube.com/watch?v=x59JWuqH6NI
2. https://www.youtube.com/watch?v=H84UJn1CiWo&list=PL6Omre3duO-OGTAMuFuDOS8wMuuxmyaiX
3. https://www.youtube.com/watch?v=C8TgduBEg2E