COURSE TITLE	**BUSINESS ANALYTICS AND INTELLIGENCE**
COURSE CODE	**04GB0203**
COURSE CREDITS	**4**

Course Outcomes: After completion of this course, student will be able to:

1. Learn time-saving techniques such as AutoFill, Named Ranges, and relative/absolute referencing to streamline data entry and formula application.
2. Develop the ability to derive insights from complex datasets using advanced functions like INDEX-MATCH and Power Query, empowering better decision-making.
3. Explore the creative possibilities of Excel through formatting, visualization, and dashboard design, enabling innovative solutions to data-related challenges.
4. Gain proficiency in Power BI, mastering its interface, tools, and data importation functionalities.
5. Achieve expertise in creating compelling visualizations and interactive dashboards for effective data presentation.

Pre-requisite of course: None

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
4	0	0	50	30	20	0	0

Contents : Unit	Topics	Contact Hours
1	**Excel Basics and Fundamental Functions with Advanced Data Handling and Functions** Excel Introduction: An overview of Excel, its interface, and basic functionalities, Basic Functions in Excel: Introduction to basic Excel functions and how to use them, Count Function: Understanding and applying the COUNT function for basic data analysis, Sum Function: Learning how to use the SUM function to add numbers in a range., Conditional Formatting: Enhancing data visualization with conditional formatting, Format Table: Techniques for formatting tables in Excel for better readability and organization, Filtering Data: Mastering data filtering to simplify data analysis, Date Function: Utilizing date functions for time-based data analysis., String Function: Manipulating text data using string functions, VLOOKUP & HLOOKUP Function: Introduction to lookup functions for searching data, Index-Match Function: Advanced data retrieval techniques using INDEX and MATCH, Slicer in Excel: Using slicers to make filtering data in tables and charts straightforward, Data Validation: Ensuring data integrity through validation techniques.	15

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Contents : Unit	Topics	Contact Hours
2	**Data Analysis, Visualization, and Security with Application and Project Work** AutoFill and Named Range: Streamlining data entry and formula application. Relative Reference & Absolute Reference: Understanding cell reference types and their applications. Security Features on Worksheet: Implementing security measures to protect data., Power Query Editor: Introduction to Power Query for data transformation and preparation. Pivot Table & Pivot Chart: Basics of creating and using pivot tables and charts for data summarization. Make a Dashboard in Excel: Steps for creating an interactive dashboard for data visualization., Find Insight Using the Dashboard: Techniques for deriving insights from dashboards. Apply Insight in a Real-life Scenario: Applying Excel insights to solve real-world problems. Make a Hands-on Mini Project in EXCEL: Culminating project that applies all the skills learned throughout the course.	15
3	**Introduction to Power BI and Basic Operations and: Advanced Data Manipulation and Visualization** Introduction to Power BI and Installation of Power BI: Overview of Power BI, its significance in the industry, and step-by-step installation. How to Import Data in Power BI and the Importance of Data: Methods of data importation, data sources, and the foundational role of data in Business Intelligence. Explain the Data, Visualization, and Filter Pane: Understanding the Power BI interface, including the canvas, data, visualization, and filter panes., Explain Report View, Data View, Model View: Diving into the different views in Power BI and their applications. Explain Different Types of Graphs in Power BI and the Application: An overview of the various graphs available in Power BI and their use cases. Formatting of Graphs: Techniques to enhance the appearance and readability of graphs., Slicers and Table: Using slicers for dynamic filtering and presenting data in table format. Transforming Data in the Power BI Query Editor: Introduction to data transformation tools and practices in the query editor. Drilling Down, Filtering Data, Hierarchies: Advanced data interaction techniques through drilling down, filtering, and hierarchy creation. Explain the Load and Connection of More Tables in the Model View: Managing data relationships and table connections within the model view.	15

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Contents : Unit	Topics	Contact Hours
4	**Data Cleaning, Formatting, and DAX Fundamentals with Dashboards, Insights** Data Cleaning with Power Query Editor: Techniques for cleaning and preparing data for analysis. Data Formatting with Power Query Editor: Approaches to data formatting to ensure consistency and accuracy. Date, String, Aggregation in Power Query Editor: Working with different data types and performing aggregations in Power Query., Introduction and Basics of DAX Function: Fundamentals of Data Analysis Expressions (DAX) and their role in Power BI. Data Modeling in the Model View: Principles of data modeling and relationship management in Power BI. Make a Dashboard in BI: Step-by-step guide to designing and implementing an interactive dashboard., Find Insight Using the Dashboard: Techniques for extracting actionable insights from dashboards. Apply Insight in a Real-Life Scenario: Applying Power BI insights to solve real-world business problems.	15
Total Hours		**60**

Textbook :

1 Business Analytics and Intelligence: Concepts, Frameworks and Applications, Subhashish Samaddar, Pearson Education, 2023

2 Business Analytics: Applications to Consumer Marketing, R. Chandukala, Chandrasekhar Mylavarapu, and Nagendra V. Chowdary, PHI Learning, 2022

3 "Pro Power BI Desktop", Adam Aspin, Apress, 2020

4 "Collect, Combine, and Transform Data Using Power Query", Gil Raviv, Microsoft Press, 2023

References:

1 Business Analytics: A Practitioner's Guide", Business Analytics: A Practitioner's Guide", Tejaswini Herath and Fredrick Harris, Springer India, 2022

2 "Power Pivot and Power BI: The Excel User's Guide to DAX, Power Query, Power BI & Power Pivot in Excel 2010-2016", "Power Pivot and Power BI: The Excel User's Guide to DAX, Power Query, Power BI & Power Pivot in Excel 2010-2016", Rob Collie & Avichal Singh, Holy Macro! Books, 2022

3 "Power BI from Rookie to Rock Star", "Power BI from Rookie to Rock Star", Reza Rad, Online Publication, 2021

4 "Power Pivot and Power BI", "Power Pivot and Power BI", Rob Collie, Avichal Singh, Holy Macro! Books, 2023

Suggested Theory Distribution:

The suggested theory distribution as per Bloom’s taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery

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Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
20.00	30.00	25.00	15.00	10.00	0.00

Instructional Method:

1 Theory

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