Business Analytics-I

<table>
<tr><td>Course Name</td><td colspan="3">Business Analytics- I</td></tr>
<tr><td>Course Code</td><td colspan="3">BAS 2601</td></tr>
<tr><td>Course Credit</td><td colspan="3">3</td></tr>
<tr><td>Trimester</td><td colspan="3">I</td></tr>
<tr><td>Course level Goals (CLGs)</td><td colspan="3">Master Excel formula, Pivot tables, and data connections for efficient data handling. Explore advanced Excel functions and Power Query for data pre-processing. Enhance data visualization skills with Power View and generate MIS reports for informed decision-making. Foster an analytical mindset to address real-world challenges through data-driven solutions. Participants will proficiently retrieve, manipulate, and analyze data from diverse databases, employing advanced SQL techniques to address real-world data challenges and facilitate data-driven decision-making</td></tr>
<tr><td>Course Outcome (COs)</td><td>Course Outcome</td><td>Bloom’s Taxonomy Category</td><td>Level Number</td></tr>
<tr><td></td><td>CO1: Recall basic data analytics concepts, terminology, and mathematical foundations</td><td>Remember, Understand</td><td>Level 1, Level 2</td></tr>
<tr><td></td><td>CO2: Apply analytic methods to simple business problems and datasets</td><td>Apply</td><td>Level 3</td></tr>
<tr><td></td><td>CO3: Analyze patterns and trends using statistical techniques</td><td>Analyze</td><td>Level 4</td></tr>
<tr><td></td><td>CO4: Evaluate the suitability and effectiveness of different analytics tools</td><td>Evaluate</td><td>Level 5</td></tr>
<tr><td></td><td>CO5: Create actionable business insights and dashboards using analytics</td><td>Create</td><td>Level 6</td></tr>
<tr><td></td><td colspan="3"></td></tr>
<tr><td>Pre-Requisite</td><td colspan="3">Basic Excel functions and Overview of Database</td></tr>
<tr><td>Course Outline</td><td colspan="3">Unit 1: Excel Basics and Data Connections
• Introduction to Excel formula and functions
• Understanding data connections in Microsoft Excel
• Data summarization using Pivot tables

Unit 2: Data Pre-processing and Power Tools</td></tr>
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	• Data pre-processing using Power Query • Introduction to Data Modeling with Power Pivot • Advanced Excel functions for data analysis (30 mins) **Unit 3: Data Visualization and MIS Reports** • Creating visualizations using Power View (1 hour) • Generating MIS reports using Excel (30 mins) • Utilizing Data Analysis Tool pak for data insights (30 mins) • What-if analysis and Solver (1 hour), • Advanced excel add-ins for analysis and modeling (30 mins) **Unit 4 : Advanced Topics in Excel** • Advanced Excel-formula and Functions (Introduction to advanced functions (INDEX, MATCH, VLOOKUP, HLOOKUP),TEXT functions for manipulating text data, Logical functions (IF, AND, OR, NOT) for advanced decision-making, Working with date and time functions.) • Data Cleaning and Advanced Data Tools (Splitting and cleaning data using Text to Columns, Creating custom data validation rules) **Unit 5: Introduction to SQL** • Introduction to Databases • What is a database? • Types of databases (relational vs. non-relational) • SQL in the context of databases • Overview of SQL syntax and environment • Understanding tables, rows, and columns **Unit 6: Data Retrieval** • Basic SELECT Statements • Retrieving data from a single table • Filtering data using WHERE clause • ORDER BY, LIMIT, OFFSET clause • Data Manipulation using insert, update and delete statement **Unit 7: Data Filtering and Aggregation** • Using logical operators (AND, OR, NOT) • Pattern matching with LIKE • Filtering with IN, BETWEEN, and NULL • Aggregation Functions

	• GROUP BY clause and HAVING **Unit 8: Advanced SQL Queries** • Using subqueries in SELECT, FROM, and WHERE clauses • Joins and its types. **Unit 9: Advanced Data Analysis Techniques** • Window Functions • OVER clause • ROW_NUMBER (), RANK (), DENSE_RANK (), NTILE () • Aggregate functions with window functions (SUM (), AVG (), etc.) • Common Table Expressions (CTEs) **Unit 10: Working with Complex Data Types** • Date, Time and String Functions • Extracting parts of date/time • Date arithmetic • Date/time formatting **Unit 11: Case Studies and Practical Applications** • Data analysis case studies Problem-solving using SQL
References	**Text Book:** • Microsoft Excel Data Analytics for Dummies by Nelson • Business Analytics: Data Analysis & Decision Making by Wayne Winston-Cengage • Learning SQL: Generate, Manipulate, and Retrieve Data" by Alan Beaulieu • SQL for Data Analytics: Perform fast and efficient data analysis with the power of SQL" by Upom Malik, Matt Goldwasser, and Benjamin Johnston