Core XII   **Business Data Analytics**

Course Objectives

- Understand the fundamentals of data analytics: Students should be able to grasp the basic concepts and principles of data analytics, including data types, data sources, and data processing techniques.
- Develop proficiency in data manipulation and exploration: Students should gain hands-on experience in manipulating and exploring data using tools such as spread sheets, databases, and data visualization software.
- Learn statistical methods and techniques for data analysis: Students should acquire knowledge of statistical methods commonly used in business data analysis, including descriptive statistics, hypothesis testing, regression analysis, and time series analysis.
- Apply data analytics techniques to real-world business problems: Students should be able to identify business problems that can be addressed through data analysis, formulate appropriate analytical approaches, and interpret the results to make informed business decisions.
- Gain proficiency in data visualization: Students should develop skills in visualizing data effectively using graphs, charts, and dashboards to communicate insights and findings to stakeholders.
- Understand the ethical and legal considerations in data analytics: Students should be aware of ethical issues related to data privacy, confidentiality, and bias, and understand the legal frameworks governing the collection, storage, and use of data.
- Explore emerging trends and technologies in business data analytics: Students should stay updated on the latest trends, tools, and technologies in the field of data analytics, including machine learning, artificial intelligence, and big data platforms.

Course Outcomes

After completion of the course, learners will be able to:

- Learn about the basics of analytics, the types and their application;
- Learn the technique of projecting growth, income and cash from accounting data for the future through time-series models;
- Learn accounting ratios and forecasting through the SLR model;
- Learn data visualization through graph, SLR & the method of Least Squares for estimation of parameters;
- Learn the use of R-Programming for analysing accounting data.

Unit 1: Introduction to Business Data Analytics

Understanding Data Analytics in Business, Definition and Importance of Business Data Analytics, Overview of Data Analytics Lifecycle: Collection, Cleaning, Analysis, Interpretation, and Visualization, Role of Data Analytics in Decision-Making and Business Strategy, Data Collection and Preprocessing. Sources of Business Data: Internal and External, Data Collection Methods: Surveys, Interviews, Observations, etc. Data Cleaning and Preprocessing Techniques: Handling Missing Values, Outliers, and Data Transformation, Exploratory Data Analysis (EDA). Descriptive Statistics: Measures of Central Tendency, Dispersion, and Distribution, Data Visualization Techniques: Histograms, Box Plots, Pie-charts, Doughnut, Scatter Plots etc. Identifying Patterns and

Trends in Data using EDA

Unit 2: Business Analytics Tools in Excel

Introduction to Excel for Data Analytics, Advanced Data Analysis in Excel, PivotTables and Pivot Charts for Data Summarization and Visualization. Data Analysis Tools: Goal Seek, Solver, Scenario Manager, Slicer etc., Practical Applications in Excel, Case Studies and Business Scenarios, Hands-on Exercises and Projects to Apply Excel Skills in Real-World Analytics Tasks, Integration with External Data Sources and Automation Techniques

Unit 3: Data Visualization with Power BI

Introduction to Power BI, Overview of Power BI: Features, Components, and Benefits, Connecting to Data Sources: Excel, Databases, Online Services, etc. Creating Interactive Dashboards and Reports, Data Transformation and Modeling in Power BI, Creating Advanced Data Visualizations: Charts, Maps, and Gauges, Advanced Analytics and Insights in Power BI, Analyzing Data with Power BI, Sharing and Collaborating on Power BI Dashboards and Reports

Unit 4: Data Visualization with Tableau

Introduction to Tableau, Overview of Tableau Desktop and Tableau Server, Connecting to Data Sources: Excel, Databases, Cloud Services, etc. Building Interactive Dashboards and Visualizations, Data Preparation and Analysis in Tableau, Data Cleaning and Transformation using Tableau Prep Builder, Exploratory Data Analysis with Tableau Desktop: Drag-and-Drop Analytics, Creating Calculated Fields and Parameters, Advanced Visualization Techniques in Tableau, Implementing Advanced Chart Types: Tree Maps, Heat Maps, and Dual Axis Charts, Dashboard Design Best Practices and Interactivity Features

Project Work and Assessment: Application of Business Data Analytics Techniques and Tools in Real-World Business Scenarios, Project Planning, Execution, and Presentation, Integration of Skills Learned Throughout the Course

Suggested Readings

- ✓ *Alexander, M., Decker, J., &Wehbe, B. (2014).Microsoft Business Intelligence Tools for Excel Analysis. New Jersey: Wiley.*
- ✓ *Kumar, D. U. (2017). Business Analytics: The Science of Data Driven Decision Making. New Jersey: Wiley.*
- ✓ *Motwani, B. (2019).Data Analytics with R. New Jersey: Wiley.*
- ✓ *North, M. (2012). Data Mining for the masses. Athens, Georgia: Global Text Project.*
- ✓ *Paul, T. (2011).R Cook book. New York: O Reilly Media'*
- ✓ *Provost, F., & Fawcett, T. (2013).Data Science for Business. New York: O'Reilly Media.*