Bachelor of Arts (VS) Modern Office Management

Semester VII

Discipline Specific Course - (DSE 8.1)-BUSINESS ANALYTICS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
BUSINESS ANALYTICS (DSE 8.1)	4	2	0	2	Class XII	Nil

Learning Objectives

- To introduce learners to the concepts of business intelligence and analytics.
- To develop the ability to describe and interpret business data effectively.
- To train students in using various statistical tools for data analysis.
- To enable the creation of predictive models based on data insights.
- To guide learners in making inferences to solve business problems.
- To support effective business decision-making through data-driven insights.

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

- Apply skills to compute, aggregate, and summarise data.
- Analyse and interpret data using R packages and basic statistical techniques.
- Develop and compare linear regression models using spreadsheets and R, and interpret the outcomes.
- Explore and examine textual data using R, including techniques such as text mining and sentiment analysis.

Course Content **(Theory 30 Hours + 60 hours practical)**

Unit 1: Introduction to Business Analytics and Data Preparation **5 hours**

Introduction to Data Science; Data analytics Vs. data analysis, Application of analytics in business, Types of Data: Nominal, Ordinal, Scale; Big Data and its characteristics, Applications of Big data, Key challenges in data analytics. Data Preparation using Spreadsheets: Data Preparation and Cleaning, Sort and filter, Conditional formatting, Text to Column, Removing Duplicates, Data Validation, identifying missing values and outliers in the data.

Unit 2: Getting started with R **5 hours**

Introduction to R, Advantages of R, Installation of R Packages, Importing data from

spreadsheet files, Commands and Syntax, Packages and Libraries, Data Structures in R - Vectors, Matrices, Arrays, Lists, Factors, Data Frames, Conditionals and Control Flows, Loops, Functions, and Apply family.

Unit 3: Descriptive Statistics Using R **10 hours**

Importing Data file; Data visualisation using charts: histograms, bar charts, box plots, line graphs, scatter plots. etc; Data description: Measure of Central Tendency, Measure of Dispersion, Relationship between variables: Covariance, Correlation and coefficient of determination.

Unit 4: Predictive and Textual Analytics **(10 hours)**

Simple Linear Regression models; Confidence & Prediction intervals; Multiple Linear Regression; Interpretation of Regression Coefficients; heteroscedasticity; multi-collinearity.

Basics of textual data analysis, significance, application, and challenges. Introduction to Textual Analysis using R. Methods and Techniques of textual analysis: Text Mining, Categorization and Sentiment Analysis.

Note: The General-Purpose Software referred in this course will be notified by the Department every three years.

Practical: The learners are required to:

- Apply data cleansing techniques such as removing duplicates and handling missing values.
- Build and interpret simple linear regression models using spreadsheets or R.
- Import, process, and analyze datasets in R using relevant functions and packages.
- Use R to visualize data and present analytical results clearly.

References

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- Kingdom: Sage Publication.
- Motwani, B. (2019). Data analytics with r. New Jersey, United States: Wiley.
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