BUSINESS ANALYTICS

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Course Objective:

1. Enable all participants to recognize, understand and apply the learned models in the field of business analytics

2. Interpret results/solutions and identify appropriate courses of action for a given managerial situation whether a problem or an opportunity using Analytical tools

3. Ability to critically analyse, synthesize and solve complex unstructured business problems

4. To form an aptitude for business improvement, innovation, and entrepreneurial action

5. Enable a sense of ethical decision-making and a commitment to the long-run welfare of organizations by providing necessary data interpretations

6. To gain hands-on experience in tools/languages such as NumPy, MySQL, R, Python, Excel, Power BI, Tableau

Course Content:

UNIT 1: Introduction to Business Analytics   **3 + 6**
Introduction to Analytics | Key Skills and Competencies for Business Analysts | Drivers for Business Analytics | Applications of Business Analytics | Components of analytics – Descriptive, Predictive, and Prescriptive analytics | Framework for Business Analytics | Life Cycle for Business Analytics Process | Skills Required for a Business Analyst | Career in analytics

UNIT 2: Descriptive and Exploratory Data Analytics   **3 + 6**
Data | Information Data Warehousing Types of data - Structured Semi-Structured data | Numerical and categorical | Continuous and Discrete data | Nominal and Ordinal data | Interval and Ratio | Visualizing and Exploring Data | Descriptive Statistics | Population vs Sample | Sampling | Missing Values Outlier Detection and Treatment | Exploratory Analysis using MS Excel | Introduction to Statistics in Excel | Handling data in Excel | Pivot Tables | Exploratory Analysis using Python | Basic Statistical Measures | Univariate, Bivariate, and Multivariate Analysis

UNIT 3: Hypothesis Testing   **3 + 6**

Basics of Hypothesis Testing | Statistical and Practical Significance | Null and Alternate Hypothesis | Types of Errors - Type I and Type II Errors | The p-Value | One Sample Test | Two-Sample Test

UNIT 4: Machine Learning and AI   **3 + 6**

Overview of Machine Learning | Types of Machine Learning | Supervised Learning | Unsupervised Learning | Reinforcement Learning | Machine Learning Framework | Challenges of ML | Role of Statistics in ML Learning Algorithms and its Applications in Business | Train Test Split | Build ML applications using relevant tools and techniques | Neural Network | Artificial Intelligence

UNIT 5: Data Visualization using PowerBI   **3 + 6**

Reviewing Project Requirements and Determining Data Sources | Importing Data | Merging Tables | Creating Table Relationships | Creating Visualizations | Matrix Table | Column and Line Chart | Slicers | Map Visualizations | Dashboard

Course Outcome:

1. He / She can systematically arrange and maintain any given large data set - In Excel

2. Using a pivot table a student can query large sets of data in many user-friendly ways - In Excel

3. Can convert piles of data into helpful graphics and charts using graphical functions - In Python

4. Using the forecast worksheet box, a student can analyse and create forecast predictions of a given data set - R Programming

5. Calculate, organize and evaluate data using basic & complex math functions - In SQL

6. A student can create a database with multiple tables with necessary filters and can identify the relationship between databases created and link the database with software - In PowerBI and Tableau

20 PROJECT TITLES

1. Walmart's Sales Analysis through Data Visualization

2. Analyse World Happiness Data Using Python

3. Exploratory Data Analysis of Titanic Dataset

4. Predict the popularity of Ted Talks

5. Student performance analysis using Visualizations

6. Tech Layoff Analysis

7. Exploratory Data Analysis on Heart Disease Prediction

8. Can Random Forest Regressor improve Selling Price prediction more accurately

9. Analysis and Visualization of Graduate Admissions

10. Exploratory data analysis on 1000 companies' data

11. Exploratory data analysis on Air traffic data using Excel

12. Exploratory data analysis on Banking data using Excel

13. Computation of the AQI (Air Quality Index) through data visualization

14. Machine learning model using Corona Data

15. Analyze the Credit Card Spending Habits in India

16. Analyze the profitability of e-commerce sales using Machine Learning

17. Analyze Daily Yoga Impact Screen Time Habits

18. Create an ML Model for the car data

19. QS World University Rankings EDA Analysis

20. Analyze the retail data and Built a model to predict the purchase amount

Books References: -

S.No	Capital Market Reference Books
1	Acharya Seema & Prasad R N., 2016." Fundamentals of Business Analytics " Wiley, Second Edition, ISBN-10: 8126563796, ISBN-13: 978-8126563791
2	Kumar Dinesh., 2021." Business Analytics: The Science of Data-Driven Decision Making" Wiley, First edition, ISBN-10: 9354246192, ISBN-13: 978-9354246197
3	Mathew Regi., 2020. " Business Analytics for Decision Making" Pearson Education, First edition, ISBN-10: 9353948436, ISBN-13: 978-9353948436
4	Albright S. Christian and Winston Wayne L., 2019. "Business Analytics: Data Analysis & Decision-Making" Cengage Learning India Pvt. Ltd., Sixth edition, ISBN-10: 9353502551, ISBN-13: 978-9353502553