

## SEMESTER-V

### COURSE 14: BUSINESS ANALYTICS

Theory

Credits: 3

3 hrs/week

#### **Course Objectives:**

The course aims to help learners to acquire knowledge on Business Analytics and explain why Business Analytics is important. State some typical examples of Business Applications and differentiate between OLAP and OLTP. Explain the concepts of Business Intelligence and understand different types of Analytics. Differentiate between Data Mining and Machine Learning Concepts.

#### **Learning Outcomes:**

After Completing this course, the students will be able to  
Understand business analytics and develop business intelligence. Analyze data using statistical and data mining techniques for business intelligence. Understand case studies for predictive models. Expertise in OLAP Tools. Apply different Analytic Techniques.

**Unit 1: Business Analytics:** definition, Components of Business Analytics, Types of Business Analytics methods, Benefits of Business Analytics, Business Analytics Tools, Applications of Business Analytics, Trends in Business Analytics

#### **Case Study:**

1. Retail Analytics
2. Marketing Analytics

**Unit 2: Descriptive Analytics, Statistics:** Types of Statistics, Types of Data, Measure of Central Tendency: Mean, Median, Mode, Standard Deviation, Variance

#### **Case Study:**

1. Financial Analytics
2. Social Media and Web Analytics

**Unit 3: OLAP, OLAP Operations:** Roll Up, Drill Down, Slice and Dice, Pivot, Types of OLAP, OLAP Tools, OLTP, Characteristics of OLTP, OLTP advantages and disadvantages,

**Case Study:** Working with any one of the OLAP Tools

**Unit 4:** Architecture and Components of Business Intelligence, Business Intelligence for Management, Operational BI, What is Business Intelligence, Benefits of BI, Roles and Responsibilities of BI, Overview of Popular BI Tools in Market

**Case Study:** Real-Time Credit and Debit Card Fraud Detection, an HPE Shadowbase

**Unit 5:** Data Mining Concept, Concepts of data mining model with its development and deployment in business scenario, Types of Data Mining Models, Machine Learning: definition, How ML works, Features and Importance of ML, Machine Learning Concepts: Classification of ML

**Case Study:** Healthcare Analytics

**Text Books:**

1. Module 5, Business Data Analytics by IBM
2. Essentials of Business Analytics: An introduction to the methodology and its applications by Bhima sankaram P, Sridhar S

## SEMESTER-V

### COURSE 14: BUSINESS ANALYTICS

Practical

Credits: 1

2 hrs/week

#### LIST OF EXPERIMENTS

1. Draw the diagram showing the types of Variables with examples.
2. Differentiate between Numerical and Categorical Variables.
3. What are Named variables? Using Ms-Excel, create a list of 10 named variables and add the numbers automatically.
4. What is a Ratio Variable? State the importance of Ratio Variable in Data Analytics.
5. Explain the Data Table in Excel. Create a One Variable Data Table in Excel.
6. What is a two Variable Data Table? Write steps to create a Two Variable Data Table.
7. Write steps for analyzing a Data Table with Multiple Formulas in Excel.
8. How do you Create, Rename, Recode, and Merge Variables in R?
9. Write steps to create Your Name, Age, Class, and College Name in R.
10. Draw a Chart for R- Variables.
11. Find the Average Price of given items using MS-Excel.

|                     |      |
|---------------------|------|
| Rice Bag Ashirwad   | 1450 |
| Rice Bag India Gate | 1200 |
| Sona's Sona Masurie | 1300 |
| Kohinoor Rice       | 1100 |
| Aabida Basmati Rice | 1400 |
| Indian Valley       | 1250 |
| Mannat Rice         | 1200 |
| Shaalimaar Rice     | 1425 |

12. Using Ms-Excel, find the Median Value of the following items.

| Items  | Status     | Amount Rs. |
|--------|------------|------------|
| Banana | Delivered  | 758        |
| Apple  | Cancelled  | 258        |
| Cherry | In-transit | 587        |
| Banana | Delivered  | 495        |
| Banana | Cancelled  | 687        |
| Apple  | Delivered  | 258        |
| Cherry | Delivered  | 684        |

13. Find the most frequently ordered Quantity from a supermarket store in MS-Excel.

| Products            | Quantity | MRP (Rs.) |
|---------------------|----------|-----------|
| Tang Orange Flavour | 5        | 1050      |
| Rasna Orange        | 6        | 1200      |
| RoohAfza            | 5        | 1800      |
| Tang Apple          | 10       | 1200      |
| Rasna Green Apple   | 5        | 1700      |
| Tang Cocktail       | 5        | 1400      |
| Jaljeera            | 15       | 120       |

14. Find the Highest and Lowest Marks of Students obtained in English using Ms-Excel.

|            |    |
|------------|----|
| Himabindu  | 85 |
| Karthik    | 15 |
| Renuka     | 78 |
| Mallika .S | 15 |

|               |     |
|---------------|-----|
| Ashok Jaiswal | 100 |
| Billu Yadav   | 75  |
| Girish J.     | 50  |
| Sarika        | 05  |

15. Find the Geometric and Harmonic Mean Wages from the following data using Ms-Excel.

| <b>Job</b>             | <b>Wages (Rs. )</b> |
|------------------------|---------------------|
| Electrician            | 200                 |
| Nurse                  | 500                 |
| Sales Manager          | 540                 |
| Manufacturing Engineer | 540                 |
| Celebrity              | 450                 |
| Beautician             | 480                 |
| Data entry operator    | 350                 |
| Plumber                | 240                 |

16. Using Ms-Excel, calculate Standard Deviation of total sales from the given data.

| <b>Total Sales (Rs.)</b> | <b>Branch</b> |
|--------------------------|---------------|
| 258000                   | Delhi         |
| 485220                   | Mumbai        |
| 875010                   | Kolkata       |
| 235461                   | Hyderabad     |
| 875212                   | Indore        |
| 785223                   | Surat         |
| 345621                   | Pune          |

17. Find Q1 and Q3 and also Quartile Deviation from the following information in Ms-Excel.

| S. No. | Value |
|--------|-------|
| 1      | 145   |
| 2      | 254   |
| 3      | 156   |
| 4      | 354   |
| 5      | 253   |
| 6      | 253   |
| 7      | 245   |
| 8      | 892   |
| 9      | 242   |
| 10     | 268   |

18. Find the Quartiles from the following data in Ms-Excel.

|                    |    |    |    |    |    |    |    |    |    |
|--------------------|----|----|----|----|----|----|----|----|----|
| Height (in inches) | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 |
| No. of Persons     | 2  | 3  | 6  | 15 | 10 | 5  | 4  | 3  | 1  |

19. Compare and find the Range of 10 Students' marks in Mathematics and Statistics using Ms-Excel.

|            |    |    |    |    |    |    |    |    |    |
|------------|----|----|----|----|----|----|----|----|----|
| Maths      | 25 | 40 | 30 | 35 | 21 | 45 | 23 | 33 | 10 |
| Statistics | 30 | 39 | 23 | 42 | 2  | 40 | 25 | 30 | 18 |

20. Calculate Variance from the following data in MS-Excel.

X: 10, 11, 17, 25, 7, 13, 21, 10, 12, 14