

**SES's L.S. RAHEJA COLLEGE OF ARTS AND COMMERCE
(AUTONOMOUS)**



BOARD OF STUDIES: Information Technology and Data Science
PROGRAMME: Bachelor of Commerce (Banking and Insurance)
SEMESTER: III
NOMENCLATURE OF THE COURSE: Data Science and Analytics
NEP Vertical: OE
Credit: 02

(As Per Choice Based Credit System (under NEP 2020) with effect from the academic year 2025-26)



Programme:	Bachelor of Commerce (Banking and Insurance)
Nomenclature of the Course	Data Science and Analytics
Total Marks	50
Semester:	III
Academic year	2025-26

LEARNING OBJECTIVES:

1. Understand the concept of data science, its significance, and how it integrates with various industries.
2. Gain insight into the primary roles in data science, including Data Scientist, Data Analyst, and Data Engineer.
3. Get acquainted with data formats like CSV, JSON, XML, and Excel and their significance in data handling.
4. Perform data analysis and data visualization using Power BI.

COURSE OUTCOMES:

1. To define data science and articulate its relevance and applications across different industries.
2. To describe the key roles in a data science team, including the responsibilities of a Data Scientist, Data Analyst, and Data Engineer.
3. To identify various data collection methods (e.g., APIs, web scraping) and distinguish between common data formats like CSV, JSON, XML, and Excel.
4. To perform data visualization and data analysis using Power BI.

Unit	Course Content	Andragogy	No of Lectures
I	<p>Introduction to Data Science: Definition, Overview of Data Science, Applications in Industry- Business, Healthcare, Finance, Banking etc., Key Roles in Data Science- Data Scientist, Data Analyst, Data Engineer, Common tools and languages used in Data Science- Python, R, SQL, Jupyter Tableau.</p> <p>Understanding Data: Types of Data- Structured, Semi-structured, and Unstructured Data, Data Collection sources (APIs, web scraping, public datasets), Introduction to Data Formats- CSV, JSON, XML, Excel, Classification and sub-categories of data: qualitative and quantitative, Introduction to Data Quality- Missing values, outliers, duplicates</p>	<ul style="list-style-type: none"> • Task or problem centred • Give students problems: Provide problems for students to solve independently or in groups. • Use real-life examples: Incorporate real-life examples into lessons. 	15
II	<p>Introduction to Power BI: Power BI Architecture, Power BI introduction and overview, Introduction Power BI desktop and Power BI in Excel, Connecting with Data, Introduction to Power BI Components: Power Query, Power Pivot, Power View &Power Map</p> <p>Power Query for Data Transformation: Data Sources in Power BI Desktop, Loading Data in Power BI Desktop, Views in Power BI Desktop, Query Editor In Power BI, Transform, Clean, Shape, and Model Data</p> <p>Data Visualization: Introduction to Visuals In Power BI, Visualization Charts in Power BI, Matrixes</p>	<ul style="list-style-type: none"> • Task or problem centred • Give students problems: Provide problems for students to solve independently or in groups. 	15

	and Tables, Slicers and Map Visualizations, Gauges and Single Number Cards, Modifying Colors in Charts And Visuals, Shapes, Text Boxes, and Images		
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SUGGESTED READINGS

1. Provost, F., & Fawcett, T. (2013). Data science for business: What you need to know about data mining and data-analytic thinking. O'Reilly Media.
2. Choudhury, M. (2018). Data science: A hands-on approach. McGraw-Hill Education.
3. Knight, D., Ostrowsky, E., & Helmers, J. (2022). Microsoft Power BI quick start guide: The ultimate beginner's guide to data modeling, visualization, digital storytelling, and more (3rd ed.). Packt Publishing.
4. Powell, B. (2021). Mastering Microsoft Power BI: Expert techniques for effective data analytics and business intelligence (2nd ed.). Packt Publishing.

QUESTION PAPER PATTERN

(A) FOR CONTINUOUS EVALUATION

Particulars	Marks
Presentation/Viva Voce/Quiz	10
Assignment/Project	10
Total	20

(B) QUESTION PAPER PATTERN FOR SEMESTER END EXAMINATION

Questi on No.	Description	Total Marks	
Q. 1	Attempt the following Unit I	15	
A	Remembering		
B	Analysing		
C	Applying		
	OR		
P	Remembering		
Q	Analysing		
R	Applying		
Q. 2	Attempt the following Unit II		15
A	Understand		
B	Applying		
C	Evaluating		
	OR		
P	Understand		
Q	Applying		
R	Evaluating		