

Branch Name:	BCA (Bachelor of Computer Applications)
Program Code:	CS101
Course Title :	Basics of Data Analytics using Spreadsheet
Course Code :	23-DSE202-2C
Pre-requisite Course:	Basic familiarity with computers and logical thinking.

Course Objective:

This course is intended to make the students:

- To introduce data and analytics concepts.
- To understand data collection, cleaning, and ethics.
- To perform analysis using MS Excel.
- To apply analytics in real-life scenarios (business, agriculture, finance).

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)								Total
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory				Practical				
				University Assessment		Continuous Assessment		University Assessment		Continuous Assessment		
				Min. Marks	Max. Marks	Min. Marks	Max. Marks	Min. Marks	Max. Marks	Min. Marks	Max. Marks	
2	-	2	3	09	25	09	25	-	-	09	25	75

Course Contents:

Sr. No	Topic	Total Hours	Weightage (%)
1.	Introduction to Data Analytics: Understanding data and its types (structured, unstructured, semi-structured) • Understanding Data and its Types: ◦ Structured, Unstructured, Semi-structured • What is Data Analytics ◦ Descriptive ◦ Diagnostic ◦ Predictive ◦ Prescriptive • Importance of Data Analytics in daily life	12	25
	• Applications of Data Analytics: ◦ Business, Banking, Agriculture, Education		
2.	Data, Ethics, and Industry Case Studies: • Data Collection Methods (Survey, Forms, Online sources) • Different Data Sources & Formats (CSV, Excel, Database) • Data Cleaning and Transformation in Excel • Handling Missing Data and Outliers • Data Ethics: ◦ Privacy ◦ Data misuse ◦ Responsible use of data • Real-world Applications of Data Analytics • Industry-specific Applications: ◦ Finance (Banking data) ◦ Marketing (Customer analysis) ◦ Operations (Sales tracking) • Case Study (Simple real-life dataset analysis)	12	25

3.	Excel for Data Analytics : - Basic Functions: SUM, AVERAGE, COUNT - Logical Functions: IF, AND, OR - Lookup Functions: VLOOKUP, HLOOKUP, XLOOKUP - Conditional Functions: COUNTIF, SUMIF - Text Functions: LEFT, RIGHT, MID, LEN - Date Functions: TODAY, NOW - Data Validation - Error Handling: IFERROR	12	25
4.	Data Analysis & Reporting : - Sorting, Filtering and Data Organization - Pivot Table (Basic to Intermediate) - Charts (Bar, Pie, Line) - Trend Analysis - Simple Dashboard in Excel - Interpretation of results	12	25

Course Learning Outcomes (CLO):

At the end of this course, the student would be able

- CLO1:** Understand data, its types (structured, unstructured, semi-structured), and basic concepts of data analytics and its applications in real life.
- CLO2:** Identify and apply data collection methods, data sources, and perform data cleaning and transformation while considering ethical aspects of data usage.
- CLO3:** Apply Excel functions such as SUM, AVERAGE, IF, VLOOKUP, COUNTIF, and text/date functions for solving basic data analysis problems.
- CLO4:** Organize and analyze data using sorting, filtering, and Pivot Tables to generate meaningful insights.
- CLO5:** Create charts and simple dashboards in Excel to visualize data and perform trend analysis.
- CLO6:** Interpret analyzed data and prepare simple reports for decision-making in real-world scenarios.

List of Text book:

- "Beginner's Guide for Data Analysis using R Programming" by Jeeva Jose, Khanna Publishing House, 2024.
- "Data Analytics" by V.K. Jain, Khanna Book Publishing Company, 2024.
- "Excel Data Analysis For Dummies" by Stephen L. Nelson and E. C. Nelson, John Wiley & Sons; 3rd edition, 2016.
- Data Analytics Using Microsoft Excel 365 – Joseph M. Manzo.

List of Reference book:

- "Excel 2019 Bible" by Michael Alexander, Richard Kusleika, and John Walkenbach, John Wiley & Sons, 25 Sept 2018.
- "Spreadsheet Modeling and Decision Analysis: A Practical Introduction to Business Analytics" by Cliff T Ragsdale, Cengage learning asia pet. 2015.
- "Mastering Excel" by WebTech Solutions, Khanna Publishing House, 2024.

E-Resources/ Web Links:

- <https://support.microsoft.com/excel>
- Best for learning formulas and features directly from Microsoft
- <https://www.excelcampus.com>
- Provides lists of must-know functions for data analysis
- <https://www.gurusoftware.com>
- Step-by-step beginner-to-advanced Excel learning with examples
- <https://www.kaggle.com>
- <https://data.world>

List of Experiments:

Note: The experiment list provided beneath is for reference only. The course teacher may change/formulate it as per his/her methodology and requirement.

Practical List:

No.	Program Description
1.	Create dataset and apply formatting.
2.	Data collection and entry (survey-based).
3.	Data cleaning (remove duplicates, blanks).
4.	Handle missing values and outliers.
5.	Apply SUM, AVERAGE, COUNT.
6.	Logical analysis using IF.
7.	Lookup using VLOOKUP / XLOOKUP.
8.	Conditional analysis using COUNTIF / SUMIF.
9.	Text data formatting.
10.	Create Pivot Table.
11.	Chart creation (Bar, Pie, Line).
12.	Case Study: Sales or Agriculture dataset.
13.	Mini Project: Real-life data analysis.

Mapping of CLO, PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CLO1	M	M	L	H	L	L	L	M	L	L	L	L	M	L	M
CLO2	M	H	M	H	M	L	M	H	L	M	L	L	M	M	M
CLO3	L	H	L	H	H	M	M	L	L	L	L	L	M	L	H
CLO4	M	H	L	H	H	M	H	L	L	M	L	L	H	M	H
CLO5	M	H	L	H	H	M	M	L	M	M	L	L	H	M	H
CLO6	H	H	M	H	M	L	H	H	M	H	M	M	H	H	H

H: High, M: Medium, L: Low