



# ST. ALOYSIUS COLLEGE(AUTONOMOUS), JABALPUR

Reaccredited 'A+' Grade by NAAC(CGPA:3.68/4.00)

College with Potential for Excellence by UGC

DST-FIST Supported & STAR College Scheme by DBT

## Faculty of Science

Bachelor of Computer Application

BCA I Semester

Paper:-Elective

Data Analysis & Visualization through spreadsheet

### Course Outcomes

CO. No.	Course Outcomes	Cognitive Level
CO 1	Understand the Basics of Spreadsheets.	Remembering
CO 2	Apply Basic Spreadsheet Operations	Applying
CO 3	Evaluate Printing and Page Layout Options	Evaluating
CO 4	Analyze Calculations and Data Validation Techniques	Analyzing
CO 5	Create and Interpret Data Visualizations	Creating

### Credit and Marking Scheme

	Credits	Marks		Total Marks
		Internal	External	
<b>Theory</b>	3	40	60	<b>100</b>
<b>Practical</b>	1	40	60	<b>100</b>
<b>Total</b>	<b>4</b>		<b>200</b>	

### Evaluation Scheme

	Marks	
	Internal	External
<b>Theory</b>	3 Internal Exams of 20 Marks (During the Semester) (Best 2 will be taken)	1 External Exams (At the End of the Semester)
<b>Practical</b>	3 Internal Exams (During the Semester) (Best 2 will be taken)	1 External Exams (At the End of the Semester)





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### Theory

No. of Lectures (in hours per week): 4.5 Hrs. per week

Total No. of Lectures: 30 Hrs.

Maximum Marks: 60

Units	Topics	No. of Lectures
I	<p><b>Introduction to Spreadsheet:</b> What is Spreadsheet, User interface.</p> <p><b>Basics of Spreadsheet:</b> <i>Overview</i> of spreadsheet. opening new file and saving spreadsheet (through menu and keyboard shortcut). rows, columns, cells, workbooks and worksheets, merging cells; Selecting rows and columns. Non-contiguous cells: How to enter data (numeric. text. date).</p> <p>Working with multiple sheets, inserting and deleting sheets. Renamingsheets.</p> <p><b>Number formatting</b> - Introduction. General and text. Number and fraction. Currency. Accounting. Percentage. Date. Time, Inserting and deleting rows. columns and cells.</p> <p><b>Formatting cells</b> - Introduction. Bold. Italics and Underline. Border, Fill and Font. Alignment. Format painter and clear format. Editing the cell content.</p> <p>Entering multiple lines of text using Ctrl+Enter, auto fill, copy and paste, cut and paste, auto fill series, use of fill handle through mouse.</p>	6
II	<p><b>Printing worksheet:</b> Select print area. see print preview, adjusting margin During print preview.</p> <p><b>Page Formatting:</b> <i>Page</i> layout — Orientation. Size. Margins; watermark, page color, page borders; inserting headers and footer, inserting page numbers, date, path and filename.</p> <p><b>Viewing:</b> split windows, layout view (normal. page break and Print).</p> <p><b>Protecting/Securing using file properties:</b> Protect Workbook. ProtectSheet. Lock Cells. Read-only Workbook.</p> <p><b>Saving a File and use of Template.</b></p> <p><b>Calculations:</b> Entering formula, editing formula, copying formula. Cell references (absolute, relative and mixed), paste formula (using keyboard shortcut and fill handle).</p> <p><b>Data Validation:</b> Reject Invalid Dates. Budget Limit; Prevent Duplicate Entries, Product Codes. Drop-down List, Dependent Drop-down Lists.</p>	6



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III	<p><b>Introduction to Functions:</b> What is function, entering functions, types of Functions.</p> <p><b>Count and Sum:</b> Countif, Count, Count Characters. Not Equal To, Sum, Total, Sumif, Sumproduct.</p> <p><b>Date &amp; Time:</b> DateDif. Today's Date. Date and Time Formats, Calculate Age. Time Difference. Weekdays, Days until Birthday, Last Day of the Month, Add or Subtract Time, Quarter. Day of the Year</p> <p><b>Text:</b> Separate Strings. Count Words. Text to Columns, Find. Search. Change Case. Remove Spaces. Compare Text. Substitute vs Replace. Text. Concatenate. Substring.</p> <p><b>Statistical:</b> Average, Negative Numbers to Zero. Random Numbers. Rank, Percentiles and Quartiles, Box and Whisker Plot. Averagelf. Forecast. Maxifs and Minlfs. Weighted Average, mode, Standard Deviation, Frequency.</p>	6
IV	<p><b>Data Visualisation:</b> Introduction to charts. various type of charts (Column, Bar. Pie. Area, XY Scatter. Bubble. Net. Stock. Column &amp; Line); 3-D Shape (Bar, Cylinder, Cone. Pyramid); Chart elements (Title. Subtitle. X-axis. Y- axis, Z-axis. Display grids, Legends, Display data series); Creating a Chart: Selecting data series. <i>select</i> chart tj pe. <i>select</i> chart components - labels. background. axes. format and design.</p> <p><b>Conditional Formatting:</b> Manage Rules. Formula based. Data Bars. Colour Scales. Icon Sets, Find Duplicates. Shade Alternate Row s. Compare Two Lists. Conflicting Rules. Heat Map.</p> <p><b>Data Analysis:</b> Sort and Filter</p> <p><b>Pivot Tables:</b> Creating pivot table. Group pivot table items. pivot table summarization. Multi-level pivot table, Frequency distribution. pivot chart. Slicers. update pivot table. calculated field/item. GetPivotData, <b>If analysis.</b></p>	6

## TEXTBOOKS:

- Jacek Artymiak, Beginning OpenOffice Calc: From Setting Up Simple Spreadsheets to Business Forecasting. 2011 Apress, ISBN: 9781430231592
- Jacek Artymiak. OpenOffice.org Calc Functions and Formulas Tips. Essential OpenOffice.org Calc Skills. 1st ed., 2011
- Michael Alexander, Richard Kusleika, John Walkenbach.; Microsoft Excel 2019 Bible: The Comprehensive Tutorial Resource; John Wiley & Sons Inc.

## REFERENCE BOOK:

- Walkenbach J.; Microsoft Excel 2016 Bible: The Comprehensive Tutorial Resource; Wiley.
- Fischer W., Excel: Quick Start Guide from Beginner to Expert (Excel, Microsoft Office); CreateSpace Independent Publishing Platform.
- Harvey G., Excel 2016 for Dummies (Excel for Dummies); John Wiley & Sons.
- Kalmstrom P.; Excel 2016 from Scratch: Excel course with demos and exercises; CreateSpace Independent Publishing Platform.
- Walkenbach J.; Excel Charts. John Wiley & Sons.



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## List of Practical

1. Simple data entry in a workbook and Perform the following operations as given below.
  - i. Inserting column and rows and deleting columns and rows.
  - ii. Selecting range of columns and rows.
  - iii. Change the width of column and height of rows by using menu.
  - iv. Hiding and unhide the rows and columns.
  - v. Entering multiple lines of text.
  - vi. Rename the worksheet as "BCA 1st semester" and Save the workbook as "Practical 1".
  
2. Cell formatting , Auto Fill Series and Advance Fill
  - i. Enter random data and perform a cell formatting operation.
  - ii. Filling a series with formatting (rollno as 1 to 20).
  - iii. Filling a series without formatting (rollno as 21 to 40).
  - iv. Fill days.
  - v. Filling a weekdays.
  - vi. Perform an advance fill operation.

