(OPEN ELECTIVE (OE)) (For Arts and Commerce Students)		
Title of the Course and Course Code -VGVUOE204	**DATA ANALYTICS**	**No. of Credits: 03**
Unit No.	**Content**	**No. of Lectures**
I	**Spread Sheet**	
	a) Creating and Navigating worksheets and adding information to worksheets • Types of data, entering different types of data such as texts, numbers, Date, functions. • Quick way to add data Auto complete, Autocorrect, Auto fill, Auto fit. Undo and Redo. • Moving data, contiguous and non-contiguous selections, Selecting with keyboard. Cut-Copy, Paste. Adding and moving columns or rows. Inserting columns and rows. • Find and replace values. Spell check. • Formatting cells, Numbers, Date, Times, Font, Colors, Borders, Fills. **b) Multiple Spreadsheets** • Adding, removing, hiding and renaming worksheets. • Add headers/Footers to a Workbook. Page breaks, preview. • Creating formulas, inserting functions, cell references, Absolute, Relative (within a worksheet, other worksheets and other workbooks). **c) Functions** • Financial functions: FV, PV, PMT, PPMT, IPMT, NPER, RATE • Mathematical and statistical functions. ROUND, ROUNDDOWN, ROUNDUP, CEILING, FLOOR, INT, MAX, MIN, MOD, SQRT, ABS, SUM, COUNT, AVERAGE **d) Data Analysis**	**15 Hrs.**

	• Sorting, Subtotal. Pivot Tables- Building Pivot Tables, Pivot Table regions, Rearranging Pivot Table.	
II	**Advanced Spread Sheet**	**15 Hrs.**
	a) Multiple Spread sheets • Creating and using templates, Using predefined templates, Adding protection option. • Creating and Linking Multiple Spreadsheets. • Using formulas and logical operators. • Creating and using named ranges. • Creating Formulas that use reference to cells in different worksheets. **b) Functions** • Database Functions LOOKUP, VLOOKUP, HLOOKUP • Conditional Logic functions IF, Nested IF, COUNTIF, SUMIF, AVERAGEIF, String functions LEFT, RIGHT, MID, LEN, UPPER,LOWER, PROPER, TRIM, FIXED • Date functions TODAY, NOW, DATE, TIME, DAY, MONTH, YEAR, WEEKDAY, DAYS360 • Statistical Functions COUNTA, COUNTBLANK, CORREL, LARGE, SMALL **c) Data Analysis** • Filter with customized condition. • The Graphical representation of data Column, Line, Pie and Bar charts. • Using Scenarios, creating and managing a scenario. • Using Goal Seek, Using Solver • Understanding Macros, Creating, Recording and Running Simple Macros. Editing a Macro (concept only)	
III	**Database and MySQL**	**15 Hrs.**
	a) Introduction: Introduction to Databases, Relational and Non-relational database system MySQL as a Non-procedural Language. View of data. **b) MySQL Basics :**	

Statements (Schema Statements, Data statements, Transaction statements), names (table & column names), data types (Char, Varchar, Text, Mediumtext, Long text, Smallint, Bigint, Boolean, Decimal, Float, Double, Date, Date Time, Timestamp, Year, Time), Creating Database, inserting data, updating data, Deleting data, expressions, built-in-functions – lower, upper, reverse length, Ltrim, Rtrim, trim, left, right, mid, concat, now, time, date, curdate, day, month, year, dayname, monthname, abs, pow, mod, round, sqrt missing data (NULL and NOT NULL DEFAULT values) CREATE,USE, ALTER (Add, Remove, Change columns), RENAME, SHOW, DESCRIBE (CREATE TABLE, COLUMNS, STATUS and DATABASES only) and DROP (TABLE, COLUMN, DATABASES statements), PRIMARY KEY FOREIGN KEY (One and more columns) Simple Validity checking using CONSTRAINTS.

c) MySQL Simple queries:

The SELECT statement (From, Where, Group By, Having, Order By,Distinct, Filtering Data by using conditions. Simple and complex conditions using logical, arithmetic and relational operators (=, !,=, <, >, < >, AND, OR, NOT, LIKE) Aggregate Functions: count, sum, avg, max, min.

d) Multi-table queries:

Simple joins (INNER JOIN), SQL considerations for multi table queries (table aliases, qualified column names, all column selections self joins).

e) Nested Queries (Only up to two levels) :

Using sub queries, sub query search conditions, sub queries & joins,nested sub queries, correlated sub queries, sub queries in the HAVING clause. Simple Transaction illustrating START, COMMIT, and ROLLBACK.

Learning objective

1. To provide basic knowledge of MS-Excel for Statistical Techniques to the students.
2. To identify spreadsheet terminology and concepts, create formulas and functions, use formatting features, and generate charts, graphs, and reports.
3. To analyse numerical data by using statistical tools and functions.
4. Be able to write SQL statements that create database objects.

Learning outcomes

1. Understand the various database structures.
2. Create database, and perform various commands related to database.
3. Plot Column, Line, Pie and Bar charts for the given data.
4. Understand how to use excel and its features.
5. After completing the practical course students are getting knowledge about the MS-Excel, Students are able to draw diagram and graphs by using MS-Excel.Write complex SQL queries to retrieve information from databases with many tables to support business decision making.

Recommended Books:

1) Computer system & Applications by Manan Prakashan.

2) Computer system & Applications by Sheth Publication.

3) Computer Systems and Applications Faiyaz Gadiwala ,Sheth Publication.

4) Computer Systems and Applications, Verus D'sa, Marvel Publication.

Reference books

1."Applied Data Communications And Networks" By B Buchanan.

2.Mysql: The Complete Reference By Vaswani, Mcgraw Hill.

3.Mysql: Sql Database Programming For Beginners By By Kevin Lioy

SEMESTER-II

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<p align="center">(For Arts and Commerce Students)</p>
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<tr>
<td>Title of the Course
And Course code</td>
<td align="center">DATA ANALYTICS
(PRACTICAL)</td>
<td align="center">No. of Credits: 01</td>
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Practical/Lab work to be performed in Computer Lab.

List of practicals to be done using Excel and MySql :

1.Perform following :

  i) Create Worksheet   ii) Rename the worksheet

  iii) Hide the worksheet   iv) Add and Delete the worksheet

  v) Cut-Copy, Paste.   vi) Add data Auto complete

  vii) Autocorrect   viii) Auto fill, Auto fit. Undo and Redo.

  ix) Cut-Copy, Paste.   x) Save the worksheet

2.Perform following :

  i) Inserting columns and rows.

  ii) Find and replace values

  iii) Check. Formatting cells, Numbers, Date, Times, Font, Colors,   Borders, Fills.

3. Creating multiple spreadsheets with Adding, removing, hiding and renaming worksheets &Add headers/Footers to a Workbook. Page breaks, preview. Creating formulas, inserting functions, cell references, Absolute, Relative (within a worksheet, other worksheets and other workbooks).

4. Computation of data using Financial functions: FV, PV, PMT, PPMT, IPMT, NPER, RATE

5. Computation of data using Mathematical and statistical functions.

6. Sorting of data, finding Subtotal of data, creating Pivot Tables.

7.Computation of data using Database Functions LOOKUP, VLOOKUP, HLOOKUP Conditional Logic functions IF, Nested IF, COUNTIF, SUMIF,AVERAGEIF,

8. Computation of data using String functions, Date functions, Statistical Functions.

9. The Graphical representation of data Column, Line, Pie and Bar charts.

10. Creating database in MySQL.

11. Build functions in MySQL.

12. Alter, delete, drop, clauses in MySQL.

13. Aggregate functions in MySQL.

14. Multitable (Join, groupby, having) queries in MySQL.

15. Nested queries in MySQL.