Programme..Master of Commerce (MCom)

MCM5014   DATA ANALYTICS

Course Code	MCM5014	Semester	IV
Course Title	DATA ANALYTICS		
Credits	3	Type	Non Commerce

Learning/Course Objective
- To help students learn, understand and practice data analytics.
- To identify the different components of the Excel workbook and worksheet.
- Help students to gain a basic understanding of computer programming with R.
- To learn the principles and procedures of correlation and regression analysis and how to allocate information in data sets using statistical software.

Course Structure

UNIT I :

Introducing Excel
Workbooks and Worksheets, Moving Around a Worksheet, Ribbon tabs, Types of commands on the Ribbon, Using Shortcut Menus, Working with Dialogue Boxes, Task Panes, Getting started on your worksheet, Creating a chart, Printing your worksheet, Saving your worksheet, Exploring Data Types, Modifying Cell Contents, Deleting, Replacing, Editing of a cell. Some handy data entry techniques, Number Formatting.

UNIT II:

Worksheet Operations
Moving and resizing windows, Switching among windows, Activating a worksheet, Adding, Deleting a worksheet, Changing a sheet tab color, Rearranging your worksheets, Hiding, un-hiding a worksheet, Worksheet View, Comparing sheets side by side, Selecting ranges, complete rows and columns, noncontiguous ranges, multi-sheet ranges, special types of cells. Copying or Moving Ranges. Paste Special dialogue box, Adding comments to cells.

UNITIII:

Introduction to R Programming
R and R Studio, Logical Arguments, Missing Values, Characters, Factors and Numeric, Help in R, Vector to Matrix, Matrix Access, Data Frames, Data Frame Access, Basic Data Manipulation Techniques, Usage of various apply functions – apply, lapply, sapply and tapply, Outliers treatment.

UNIT IV:

Correlation and Regression
Analysis of Relationship, Positive and Negative Correlation, Perfect Correlation, Correlation Matrix, Scatter Plots, Simple Linear Regression, R Square, Adjusted R Square, Testing of Slope, Standard Error of Estimate, Overall Model Fitness, Assumptions of Linear Regression, Multiple Regression, Coefficients of Partial Determination, Durbin Watson Statistics, Variance Inflation Factor.

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UNIT V:

Probability, Probability& Sampling Distribution
Experiment, Sample Space and Events, Classical Probability, General Rules Of Addition, Conditional Probability, General Rules For Multiplication, Independent Events, Bayes' Theorem, Discrete Probability Distributions: Binomial, Poisson, Continuous Probability Distribution, Normal Distribution &t-distribution, Sampling Distribution and Central Limit Theorem.

Statistical Inference and Hypothesis Testing
Population and Sample, Null and Alternate Hypothesis, Level of Significance, Type I and Type II Errors, One Sample t Test, Confidence Intervals, One Sample Proportion Test, Paired Sample t Test, Independent Samples t Test, Two Sample Proportion Tests, One Way Analysis of Variance and Chi Square Test.

Learning/Course Outcome
- Acquire basic knowledge on R Programming.
- Able to perform Test of Hypothesis.
- Provide understanding on measurement of probability, probability distributions, regression and correlation analysis.

Books for References :

1.Ken Black (2013). *Business Statistics*, New Delhi, Wiley.
2.Anderson, David R., Thomas A. Williams and Dennis J. Sweeney. (2012). *Statistics for Business and Economics*. New Delhi: South Western.
3.Levin, Richard I. and David S. Rubin (1994). *Statistics for Management.* New Delhi: Prentice Hall.
4.Waller, Derek. (2008). *Statistics for Business*. London: BH Publications.
5.Lee, Cheng. et al. (2013). *Statistics for Business and Financial Economics*. New York: Heidelberg Dordrecht.
6. Excel 2013 Bible: John Walkenbach, Wiley.
7.Microsoft Excel 2013: Data Analysis and Business Modeling: Winston, PHI
8.Excel Data Analysis - Modelling and Simulation: Hector Guerrero, Springer.
9.Excel Functions and Formulas: Bernd Held,BPB Publications.
10.Financial Analysis and Modelling using Excel and VBA: ChandanSengupta, Wiley