PROGRAM	Master of Business Administration–Business Analytics
SEMESTER	IV
COURSE TITLE	STATA
COURSE CODE	04MB0458
COURSE CREDITS	2
COURSE DURATION	28 (28 Sessions of 60 minutes each)

COURSE OUTCOMES:

- Apply software knowledge to manage data and perform visual and descriptive analyses
- Analyze data using bivariate and multivariate statistical tools in STATA software and interpret the results
- Apply parametric and non-parametric tests to draw meaningful inferences from the data using STATA software

COURSE CONTENTS:

Unit No	Unit / Sub Unit	Sessions
I	**Introduction to STATA** Opening STATA, STATA windows (results, review, command, variables, properties), Working with existing data (command window, menus, do-files), Entering own data into STATA (Entering data, renaming variables, creating variable labels, creating value labels), Using log files and saving work, Help command, STATA command examples **Preparing and Transforming Data in STATA** Checking for outliers, Creating new variables (Generate, Using operators, Recode, Egen), Missing Values in STATA (Missing, Replace)	8
II	**Descriptive Statistics** Types of variables and measurement (nominal, ordinal, interval and ratio), frequency tables, mean, median, mode, percentile, variance, standard deviation, coefficient of variation, Cross tabulation, Graphs to describe data (Bar, Box plot, Histogram, Pie) **Correlation:** Scatter plot, Product-moment correlation coefficient. **Simple Linear Regression:** Simple linear regression equation and predicted values, amount of variance explained, Fitting the predicted line graphically. **Multiple Regression Analysis:** Multiple regression equation, Multiple regression with categorical independent variable, R squared and variance explained, Residual plot, Predicted values.	10
III	**Inferential Statistics using STATA:** **Parametric tests:** One sample t-test, independent-samples t-test, Paired-samples t test. One-way ANOVA and post-hoc analysis **Non-parametric tests:** Chi-square test for independence of attributes, Chi-square test for goodness of fit, Independent samples: Mann-Whitney U test, Multiple Independent-samples: Kruskal–	10

	Wallis Test, Paired-samples: Wilcoxon Signed-rank test.	
	Practical: 1. Exercise on data entry, data import, creating and saving a data file in STATA. 2. Exercise on Data management and manipulation in STATA (case summaries, replacing missing values) 3. Exercise on Data management and manipulation in STATA (Gen, with operators, recode, egen) 4. Exercise on Data management and manipulation in STATA (Sort cases, Merging files: Add cases, Add variables) 5. Exercise on data visualization for categorical data- Bar graphs, Line graphs, Pie charts 6. Exercise on data visualization for numerical data- Box plots, Histograms, Scatterplots; editing the charts 7. Exercise on frequencies and descriptive statistics 8. Computation of correlation coefficient (linear and curvilinear) 9. Fitting of simple linear regression model and prediction 10. Illustration of multiple linear regression with all continuous variables 11. Illustration of multiple linear regression with categorical independent variables 12. Prediction using multiple linear regression, interpretation of R^2, adjusted R^2 13. One sample t-test 14. Independent-samples t-test 15. Paired-samples t test 16. One-way ANOVA and post-hoc analysis 17. Chi-square test for independence of attributes 18. Chi-square test for goodness of fit 19. Independent samples: Mann-Whitney U test 20. Multiple Independent-samples: Kruskal–Wallis Test 21. Paired-samples: Wilcoxon Signed-rank test	

EVALUATION:

The students will be evaluated on a continuous basis and broadly follow the scheme given below:

		Weight-age
A	Continuous Evaluation Component (Assignments / Quizzes /Class Participation etc.) (Practical based)	20% (C.E.C.)
B	Internal Assessment (MCQ)	30% (I.A.)
C	End-Semester Practical Examination	50% (External Assessment)

SUGGESTED READINGS:

Text Books:

Sr. No	Author/s	Name of the Book	Publisher	Edition and Year
T-01	Lisa Daniels, Nicholas Minot	An Introduction to Statistics and Data Analysis using STATA	Sage Publications, Ince.	1st, 2020
T-02	Alan C. Acock	A Gentle Introduction to STATA	Stata Press Publications, StataCorp LP, Texas	4th, 2014

Reference Books:

Sr. No	Author/s	Name of the Book	Publisher	Edition and Year
R-01	Erik Mooi, Marko Sarstedt, Irma Mooi-Reci	Market Research: The Process, Data and Methods using STATA	Springer Publications	1st, 2018