COURSE MODULE: BUSINESS STATISTICS

Course Coordinator: **Ms. Lakshmi M R**				Academic Year: **2025-26**	
Department: **MBA**					
Course Code	Course Title	Core/Elective	Prerequisite	Contact Hours L: T: P	Total Hrs./ Sessions
MBA104	**Business statistics**	**Core**	**-**	**4:0:0**	**50**

Course Learning Objective:

1. To facilitate the students to compute the various measures of central tendency and dispersion using descriptive statistics.
2. To enhance the skills to visualize and estimate the relationship between variables using correlation and regression analysis.
3. To equip with the skills of decision-making using probability techniques.
4. To empower with the knowledge of trend analysis.
5. To make the students understand the procedure of hypothesis testing using appropriate parametric and non-parametric tests.
6. To familiarize the students with analytical package SPSS.

Teaching-Learning Process (General Instruction):

1. Organize practical sessions where students compute measures of central tendency, dispersion, correlation, and regression using real datasets
2. Assign tasks for students to perform probability analysis and trend forecasting using step-by-step instructions.
3. Deliveries of theoretical concepts, models, process etc., through Power Point presentations, chalk and Talk and Video demonstrations.
4. Incorporate case studies to show how statistical techniques are applied in solving problems.

Module-1

Introduction to Statistics: Meaning and Definition, Importance, Types, Measures of Central Tendency - Arithmetic mean, Geometric mean, Harmonic mean, Median, Quartiles, Deciles, Percentiles, Mode. Measures of Dispersion -Range, Quartile deviation, Mean deviation, Standard deviation, Variance, Coefficient of Variation, Skewness, Moments and Kurtosis (Theory and Problems).

TLP: Power Point Presentation, Video demonstration or simulations, Chalk and Talk

Module-2

Correlation and Regression: Correlation - Significance, Types, and Methods, Scatter diagram, Karl Pearson correlation, Spearman's Rank correlation, Regression, Significance, Linear Regression Analysis, Types of regression models, Lines of Regression, Standard error of Estimate (Theory and Problems).

TLP: Power Point Presentation, Video demonstration or simulations, Chalk and Talk

Module-3

Probability Distribution: Concept of probability, Counting rules for determining number of outcomes - Permutation and Combination, Rules of probability- Addition and Multiplication, Baye's Theorem. Concept of Probability Distribution, Theoretical Probability Distributions - Binomial, Poisson, Normal (Problems only on Binomial, Poisson and Normal). (Theory and Problems).

TLP: Power Point Presentation, Video demonstration or simulations, Chalk and Talk

Module-4

Time Series Analysis: Objectives, Variations in Time Series. Measurement of Trend, Graphic Method, Moving Average Method, Semi-Average Method, Least Square Method. Measurement of Seasonal Variations- Method of Simple Averages, Ratio to Trend Method-Ratio to Moving Average Method, Link Relative Method. (Theory and Problems).

TLP: Power Point Presentation, Video demonstration or simulations, Chalk and Talk.

Module-5

Hypotheses Testing: Definition, Types, Procedure for testing, Errors in hypotheses testing. Parametric and Non-Parametric Tests -t-test, z-test, f-test, Chi-square test, u-test, K-W Test (problems on all tests). Analysis of Variance (theory only)

TLP: Power Point Presentation, Video demonstration or simulations, Chalk and Talk

Module-6

Computer lab for Statistics: SPSS: Overview of SPSS, Creating, saving and editing files, Importing files from other formats. Transforming Variables - Compute, Multiple responses. Organization and Presentation of Information - Measures of Central Tendency and Variability, Frequency Distributions. Charts and Graphs, Hypotheses testing using means and cross-tabulation, Paired t, Independent Sample t, Chi- square. Correlation, Regression Analysis, Linear, Logistic, Analysis of Variance- One Way ANOVA, ANOVA in regression (Mandatory all the students should be taught in the lab and give them the practical knowledge which will be beneficial for their research work and Industrial applications.)

TLP: Power Point Presentation, Video demonstration or simulations, Chalk and Talk

Course Outcomes:

At the end of the course, the student will be able to:

CO1 Understand how to organize, manage, and present the data
CO2 Use and apply a wide variety of specific statistical tools
CO3 Understand the applications of probability in business
CO4 Effectively interpret the results of statistical analysis
CO5 Develop competence of using computer packages to solve the problems

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing marks for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements (passed) and earned the credits allotted to each course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

Continuous Internal Evaluation: There shall be a maximum of 50 CIE Marks. A candidate shall obtain not less than 50% of the maximum marks prescribed for the CIE

1. Two Unit Tests each of **50 Marks (Will be reduced to 25 marks)**

2. Two assignments each of **25 Marks** or **one Skill Development Activity of 50 marks**

to attain the COs and POs

The sum of two tests, two assignments/Skill Development Activities, will be **scaled down to 50 marks**

CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.

- The question paper will have 8 full questions carrying equal marks.
- Each full question is for 20 marks with 3 sub questions.

- Each full question will have sub question covering all the topics.
- The students will have to answer five full questions; selecting four full questions from question number one to seven in the pattern of 3, 7 & 10 Marks and question number eight is compulsory.
- 40 percent theory and 60 percent problems in the SEE.

List of Text Books

1. S C Gupta (2018), Fundamentals of Statistics, 7th edition Himalaya Publications.
2. J K Sharma (2020), Business Statistics 5th edition Vikas Publishing House.
3. S P Gupta (2021), Statistical Methods 46th edition Sultan Chand Publications.
4. 4. C R Kothari (2015), Research Methodology- Methods and Techniques, Viswa Prakasam Publications.
5. William E. Wagner, III (2015), Using IBM SPSS- Statistics for Research Methods and Social Science Statistics 5th edition Sage Publications.

Weblinks links and Video Lectures (e-Resources):

1. Students should opt Swayam NPTEL Course on Business Statistics offered by Prof. M.K.Barua Dept. of Management studies IIT Roorkee.
2. https://www.youtube.com/watch?v=VDLyk6z8uCg Swayam NPTEL Course on Business Statistics by Dr. P. M. Shiva Prasad, Department of Commerce, Teresian College, Mysuru.

Mapping of COS and POs

	PO1	PO2	PO3	PO4	PO5	PSO 1	PSO 2	PSO 3	PSO 4
CO1	1				2	3			
CO2		2	2				2		
CO3				3		3		2	
CO4		2		2			1		2
CO5	2	3							