MBG5107 Statistical Analysis

Course Code	**MBG5107**	Semester	I
Course Title	STATISTICAL ANALYSIS		
Credits	3	Type	Core

This is an employability based skill development course that enhances the quantitative aptitude, analytical skills and data management skills

Course Description

To equip students with different methods of statistical analysis along with appropriate statistical tests to draw meaningful conclusions from the data and to make appropriate use of it in research and real-life business scenarios.

Course Outcome

By the end of the course, students will obtain the following course/learning outcome:

Knowledge Gained:

- Understand the basic concepts, tools and techniques used in statistical analysis**.**
- Identify the advantages and limitations of various analysis techniques**.**

Skills Gained:

- Conduct basic analysis of statistical data
- Interpret the results obtained from Statistical analysis and make inferences

Competency Gained:

- Make recommendations on practical problems based on the inferences of the analysis.

Course Structure

The following is a detailed syllabus. …..

Module I: Descriptive Statistics and Probability: **(6 hours)**

Module Description: (i) Measures of Central Tendency, Measures of Dispersion, Concept of Moments and their uses. (ii) Probability, Additive law of probability, Multiplicative law of probability, Probability Distributions: Random variable, probability distributions: probability density function; Distribution function,

Module II: Statistical Inference: (6 hours)

Module Description: (i) Random Sample; data; Summarization of data; Measures; Arithmetic mean; standard deviation; Skewness; Kurtosis. (ii) Sampling distribution; T.F & Chi-square distribution; Relevance of Estimation in Managerial problems; Concepts of Hypothesis and Testing hypotheses.

Module III: Sampling Theory and Design of Experiments: (6 hours)

Module Description: (i) Types of Sample : Probability Sampling and Non-probability sampling (Simple Random Sample; Stratified Random Sample; Systematic sample; cluster sample; Convenient / Judgement sample; Quota sample)

Module IV: Statistical Methods: (6 hours)

Module Description: (i) Large sample tests for Mean & proportion standard small sample tests. Analysis of variance; One-way classification, Two-way classification. (ii) Bivariate cases: Concepts of correlation; simple linear regression. Time-series Analysis. (iii)Multivariate Cases: Multiple regressions, Factor Analysis (Only methods, their use and interpretation of results)

Module V: Non-Parametric Tests: (6 hours)

Module Description: Chi-square tests; Sign tests Wilcoxon Signed – Rank tests; Wald – Wolfowitz tests; Kruskal – Wallis tests.

Testing & Evaluation (if any)

Extra Credit:

- Case Study
- Assignments
- Self Learning
- Activities 1.Quiz 2. Data Collection and interpretation.
- Internal Tests

References

1. Gupta S.P. (2012). Statistical Methods. Sultan Chand &Sons.
2. Dutta K.B. (2004). Matrix and Linear Algebra. Prentice – Hall of India.
3. Richard I. Levin, David S. Rubin, Masood H. Siddique & Sanjay Rastogi (2017). Statistics for Management. Pearson Education India, Eighth Edition.
4. Kishor S. Trivedi (2008). Probability and Statistics with Reliability, Queuing and Computer Science Applications. Wiley, Second Edition.
5. Erich L. Lehmann & Joseph P. Romano (2008). Testing Statistical Hypotheses. Springer, Third Edition.