



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal - 500 043, Hyderabad, Telangana

COURSE CONTENT

STATISTICS FOR MANAGEMENT AND RESEARCH METHODOLOGY								
I Semester: MBA								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
CMBD05	Core	L	T	P	C	CIA	SEE	Total
		4	0	-	4	40	60	100
Contact Classes: 40	Tutorial Classes: 05	Practical Classes: Nil			Total Classes: 45			
Prerequisite: Basic knowledge on statistics and research methodology								

I. COURSE OVERVIEW:

This course is designed to understand of statistical methods and research techniques, enabling to make informed decisions in the field of management and conduct research effectively. The practical skills gained in this course are valuable for professionals in a wide range of industries and are often a foundation for further studies in business and management.

II. COURSES OBJECTIVES:

The students will try to learn:

- I. The various statistical techniques and solve problems effectively in the statistics.
- II. The different types of skewness and know about the coefficient variations of skewness.
- III. The application of statistical measures of central tendency and also statistical measures of dispersion.
- IV. The application of ANOVA, other non-parametric test and analyze the recent trends.

III. COURSE OUTCOMES:

At the end of the course students should be able to:

- CO1 Evaluate and interpret skewness using different coefficients, including Karl Pearson's coefficient, Bowley's coefficient, and Kelley's coefficient.
- CO2 Distinguish between different research designs types, including experimental and cross-sectional designs.
- CO3 Apply Chi-Square distribution for tests of specified population variance, goodness of fit, and independence of attributes.
- CO4 Perform regression analysis, including least square fit and properties of regression coefficients.
- CO5 Comprehend the concepts of multiple and partial correlation.
- CO6 Analyze and interpret trends in time series data using various techniques.

IV. COURSE CONTENT:

MODULE - I: INTRODUCTION TO STATISTICS (08)

Functions of Statistics and Managerial Applications of Statistics, Relationship with other subjects. Measures of central Tendency- Mean, Median, Mode, Geometric Mean and Harmonic Mean. Range, Quartile deviation, Mean Deviation, Standard deviation and co-efficient of variation. Skewness: Karl Pearson's co-efficient of skewness, Bowley's co-efficient of skewness, Kelleys co-efficient of skewness, Kurtosis.

MODULE - II: RESEARCH DESIGN (09)

Meaning, Scope, Role of Business Research, Types of Research, Research Process, Ethics in Business Research, Research Problem, Purpose of Research Design, Types of Research Design: Experimental Research Design, Research Design for Cross Sectional, Longitudinal Studies, Data Collection Methods & Tools: Types of Data, Sources and Instruments for Data, Guidelines for Questionnaire, Sampling and its Application. Measurement and Scaling, Reliability and Validity in Measurement of Variables, Sources of Error in Measurement.

MODULE - III: TABULATION OF UNIVARIATE and SMALL SAMPLE TESTS (08)

Bi variate and multi variate data, data classification and tabulation, diagrammatic and graphical representation of data. One dimensional, two dimensional and three dimensional diagrams and graphs. Analysis of Variance: One Way and Two Way ANOVA (with and without Interaction). Chi-Square distribution: Test for a specified Population variance, Test for Goodness of fit, Test for Independence of Attributes.

MODULE - IV: CORRELATION ANALYSIS (10)

Correlation Analysis: Scatter diagram, Positive and Negative correlation, limits for coefficient of Correlation, Karl Pearson's coefficient of correlation, Spearman's Rank correlation, concept of Multiple and partial Correlation, Regression Analysis-Concept, least square fit of a linear regression, two lines of regression, Properties of regression coefficients.

MODULE - V: TIME SERIES ANALYSIS(10)

Components, Models of Time Series–Additive, Multiplicative and Mixed models, Trend analysis-Free hand curve, Semi averages, moving averages, Least Square methods and Index numbers – introduction, Characteristics and uses of index numbers, types of index numbers, un weighted price indexes, weighted price indexes, Tests of adequacy and consumer price indexes.

V. TEXTBOOKS:

1. Gerald Keller, "Statistics for Management and Economics", Cengage Learning, 11th edition, 2018.
2. Levin Richard (Author), H. Siddiqui Masood (Author), S. Rubin David (Author), Rastogi Sanjay (Author), "Statistics for Management", Pearson Education, 8th edition, 2017.
3. P.C. Tulsian, Bharat Jhunjhuwala, "Business Statistics", S. Chand, 2016.
4. Levin R.I., Rubin S. David, "Statistics for Management", Pearson, 7th edition, 2015.
5. Anderson, Sweeney, Williams, Cam, Cochran, "Statistics for Business Economics", Cengage 12th edition, 2014.
6. J. K Sharma, "Business Statistics", Vikas Publishing House, 4th edition, 2015.

VI. REFERENCE BOOKS:

1. Levine, Stephan, krehbiel, Berenson, "Statistics for Managers using Microsoft Excel", PHI, 1st edition, 2015.
2. J. K Sharma, "Business Statistics", Pearson Publications, 2nd edition, 2015.

VII. WEB REFERENCES:

1. <https://aditya30702.files.wordpress.com/2012/07/statistics-for-managers-using-microsoft-excel-gnv64.pdf>
2. <http://www.nprcet.org/mba/document/First%20Semester/BA7102%20STATISTICS%20FOR%20MANAGEMENT%20LT%20P%20C%203%201%200%204%20ODD.pdf>

VIII. E-TEXT BOOKS:

1. <http://bookboon.com/en/statistics-and-mathematics-ebooks>
2. <http://www.ebay.com/bhp/statistics-for-managers-using-microsoft-excel>
3. <https://www.sapnaonline.com/books/statistics-management-levin-richard-8177585843-9788177585841-academic>
4. <https://link.springer.com/book/10.1007/b101868>