**Syllabus for Master of Business Administration, 1st Semester**

**Subject Name: Business Statistics (BS) Subject Code: 4519207**

**With effective from academic year 2018-19**

# Learning Outcome:

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| **Learning Outcome Component** | **Learning Outcome** |
| Business Environment and Domain Knowledge (BEDK) | * Understanding the science of gathering, analysing and using data to assist in business decision making * Understanding various quantitative tools and techniques relevant to business analysis |
| Critical thinking, Business Analysis, Problem Solving and Innovative Solutions (CBPI) | * Ability to interpret statistical analysis tools commonly used in business decision making * Ability to critically evaluate business information including the graphics and probability statements |
| Global Exposure and Cross-  Cultural Understanding (GECCU) | --- |
| Social Responsiveness and Ethics  (SRE) | --- |
| Effective Communication (EC) | --- |
| Leadership and Teamwork (LT) | --- |

1. **Course Duration:** The course duration is of **40 sessions of 60 minutes each.**
2. **Course Contents:**

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| --- | --- | --- | --- |
| **Module No:** | **Module Content** | **No. of Sessions** | **70 Marks (External Evaluation)** |
| **I** | **Introduction to Business Statistics:**   * Introduction to Statistics, Statistics in Business, Types of data – Nominal, Ordinal, Interval, Ratio. * Types of variables – Dependent, independent, moderating, intervening, extraneous. Discrete / continuous. * Charts and Graphs.   **Descriptive Statistics**:   * Measure of central tendency – mean, median, quartile, mode (for Group and ungrouped data) * Measure of variability – Range, interquartile range, standard deviation, variance, coefficient of variation, (for Group and ungrouped data) * Measures of shape – kurtosis, skewness, boxplot.   **Probability:**   * Introduction to probability * Theories of probability – Classical, Relative frequency and subjective. * Laws of probability – addition, multiplication. * Inverse Probability. * Revision of probability: BAYES’ RULE | 10 | 17 |
| **II** | **Probability Distribution:**   * Discrete distribution – Binomial, Poisson. | 10 | 17 |
|  | * Continuous distribution – Uniform, normal.   **Hypothesis testing:**   * Types of hypothesis – research, statistical, substantive. * Null and alternative hypothesis. * One-tailed & Two-tailed test. * Types of Error – Type I & Type II. * Level of significance. * Steps of hypothesis testing. |  |  |
| **III** | **Parametric Tests:**  ***Uni-variate tests:***   * z-test, T-test, Levene’s F-test   ***Bi-variate tests:***   * T-test – Paired and independent, Pearson’s Correlation, Simple Linear Regression, One Way ANOVA | 10 | 18 |
| **IV** | **Non-Parametric Tests:**  ***Uni-variate tests:***   * Chi-square goodness of fit for uniform distribution   ***Bi-variate tests:***   * Spearman’s Rank Correlation, Mann-Whitney U test, Wilcoxon Sign Paired Rank Test, Chi-square test of independence   ***Multivariate:***   * Kruskal-Wallis, Friedman’s test   **Multivariate analysis:**   * Overview of Multiple Regression, Factor Analysis, Multidimensional scaling, Discriminant analysis.   ( **theoretical concepts only**) | 10 | 18 |
| **V** | **Practical:**  Students should apply the statistical hypothesis testing on assumed/hypothesized data using statistical software. | --- | (30 marks CEC) |

1. **Pedagogy:**
   * ICT enabled Classroom teaching
   * Case study
   * Practical / live assignment
   * Interactive class room discussions

# Evaluation:

Students shall be evaluated on the following components:

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| **A** | **Internal Evaluation** | **(Internal Assessment- 50 Marks)** |
| * Continuous Evaluation Component | 30 marks |
| * Class Presence & Participation | 10 marks |
| * Quiz | 10 marks |
| **B** | **Mid-Semester examination** | **(Internal Assessment-30 Marks)** |
| **C** | **End –Semester Examination** | **(External Assessment-70 Marks)** |

# Reference Books:

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| --- | --- | --- | --- | --- |
| **No.** | **Author** | **Name of the Book** | **Publisher** | **Year of Publication /**  **Edition** |
| 1 | Ken Black | Business Statistics for  Contemporary Decision making | Wiley | Latest Edition |
| 2 | Sanjiv Jaggia,  Alison Kelly | Business Statistics | McGraw  Hill | Latest Edition |
| 3 | Richard I. Levin  and David S. Rubin | Statistics for Management | Pearson | Latest Edition |
| 4 | D. P. Apte | Statistics for Managers | Excel | Latest Edition |
| 5 | Gerald Keller &  Hitesh Arora | Business Statistics | Cengage | Latest Edition |
| 6 | Joseph Francis | Business Statistics | Cengage | Latest Edition |
| 7 | T N Srivastava and  Shailaja Rego | Statistics for Management | TMH | Latest Edition |
| 8 | K. B. Akhilesh&  S. B. Balasubrahmanyam | Mathematics and Statistics for Management | Vikas | Latest Edition |
| 9 | Naval Bajpai | Business Statistics | Pearson | Latest Edition |
| 10 | D. P. Apte | M. S. Excel: Statistical Tools for  Managers | Excel | Latest Edition |
| 11 | Qazi Zameerudin, Vijay K. Khara,  S. K. Bhamri | Business Mathematics | Vikas | Latest Edition |

**Note:** Wherever the standard books are not available for the topic appropriate print and online resources, journals and books published by different authors may be prescribed.

1. **List of Journals/Periodicals/Magazines/Newspapers / Web resources, etc.**
2. Journal of Indian Business Research
3. International Journal of Statistics and Analysis
4. Sankhya – Indian Journal of Statistics
5. Economic Times
6. Financial Express
7. Business Standard
8. Economic & Political Weekly
9. Vikalpa