|  |  |
| --- | --- |
| **Program: B.Com** | **Semester : II** |
| **Course : Course : Business** Statistics**Academic Year: 2023-2024 Batch: 2023-2025** |  | **Code:** |
| **Teaching Scheme** | **Evaluation Scheme** |
| **Lectures** | **Practicals** | **Tutorials** | **Credits** | **Internal Continuous Assessment (ICA)****(weightage)** | **Term End Examinations (TEE)****(weightage)** |
| **30** | **Nil** | **Nil** | **02** | **20 Marks** | **30 Marks** |
|

|  |
| --- |
| **Internal Component** |
| **Class Test (Duration 30 Mins)** | **Projects / Assignments** | **Class Participation** |
| **10 Marks** | **10 Marks** | **-** |

 |
| **Learning Objectives :**1. To provide an overview to the students with the basic concepts involved in Statistics.
2. To apply the basics of Statistical skills which are imperative in Economics and Management.
3. To take well informed decisions in predictable and uncertain situations.
 |
| **Learning Outcomes :** After completion of the course, students would be able 1. To understand the various issues involved in the collection, analysis and arriving at conclusive

 Decisions regarding quantitative data.1. To understand and appreciate the practical relevance of various basic statistical tools in the

 Field of finance and economics. |
| **Pedagogy:**The objective of the course is to encourage students to learn and appreciate the use of the various tools of Mathematics and Statistical Techniques with regard to scientific management in businesses. Hence,1. Adaptive teaching methods.
2. To invoke Computational thinking in problem solving.
3. Classroom session with applications in MS-excel in Tutorial Lecture.
4. Students would be given project/field work for better understanding of the concepts.
 |
| **Detailed Syllabus: ( per session plan )****Session Outline For Mathematical and Statistical Techniques I****Each lecture session would be of one hour duration (60 sessions)** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Module** | **Module Content** | **Module Wise Pedagogy Used** | **Module Wise****Duration** | **Module Wise Reference Books** |
| I | **Introduction and Descriptive Statistics:**1. **Introduction:** Meaning, Scope and Limitations of Statistics, Basic Statistical Concepts: Population, Sample, variate, Attributes, Parameter, Statistic. Types of data, Sources of data: Primary and secondary, sample and census survey.
2. **Descriptive Statistics :**
3. **Measures of Central Tendency:** Definition of Average, Types of Averages: Arithmetic Mean, Combined and Weighted arithmetic mean, median, and Mode for raw data, Ungrouped frequency distribution, grouped frequency distribution. Quartiles, Deciles and Percentiles.
4. **Measures of Dispersions:** Concept of dispersion. Absolute and relative measures of dispersion, Range, Quartile Deviation, Mean Deviation, Standard Deviation and corresponding coefficients. Combined Standard deviation.
5. **Measures of Skewness and Kurtosis**

  | Classroom sessions with adaptive methods & computational thinking | 2+6+7 | 1.Statistical Methods ‐ S.G. Gupta (S. Chand & Co.)2. Quantitative Techniques for decision making by Anand Sharma.3. Business Statistics Using excel and SPSS by Nick Lee and Mike. |
| II | **Probability & Probability Distributions****a. Probability Theory**Concept of random experiment/trial and possible outcomes; Sample Space and Discrete Sample Space; Events their types, Algebra of Events, Mutually Exclusive and Exhaustive Events, Complimentary events.1. Definition of Probability, Addition theorem (without proof), conditional probability.
2. Independence of Events: P (A ∩B )=P(A) P(B). Simple examples
3. Bayes Theorem with examples.
4. **Probability Distributions:**
5. Discrete Probability Distribution: Binomial, Poisson (Properties and applications only, no derivations are expected)
6. Continuous Probability distribution: Normal Distribution. (Properties and applications only, no derivations are expected)
 | Classroom sessions with computational thinking | 4+5+6 | 1.Statistics for management by Richard Levin, David S. Rubin, Sanjay Rastogi /Masoos Husain Siddiqui.2. Operations Research Gupta and Kapoor. |
|  | **Details of Internal Continuous Assessment (ICA)**  **Internal Test Marks : 10** **3 internal test of 10 marks will be conducted and best of 2 will be taken and then average of these 2 will be taken as final 10 marks for ICA 1** **Term End Examination Question Paper Pattern** **Total Marks: 30**Q1 Answer any **two** out of the following Three questions (based on Module I) 5\*2=10Q2 Answer any **two** out of the following Three questions (Based on Module II)  5\*2=10 Q3 Answer any **two** out of the following Three questions ( Based on Both Module I&II) 5\*2=10 |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Reference Books:**

|  |  |  |
| --- | --- | --- |
| **Title** | **Author(s)** | **Publisher** |
| Business Mathematics | D. C. Sancheti and V. K. Kapoor | Sultan Chand & Sons, 2006, |
| Mathematics for Business Economics: | J. D. Gupta, P. K. Gupta and Man Mohan, | Tata Mc‐ Graw Hill Publishing Co. Ltd., 1987 |
| Schaum Series STATISTICS | Murray Spiegel, Larry Stephens | Mc Graw Hill |
| Operations Research | Gupta and Kapoor | S. Chand & Sons Co. |
| Statistical Methods | S.G. Gupta | S. Chand & Sons Co. |
| Business Mathematics & Statistics | B Aggarwal | Ane Book Pvt. Limited |
| Statistics for management | Richard Levin, David S. Rubin, Sanjay Rastogi /Masoos Husain siddiqui. | Pearson |
| Mathematics & Statistics | Ajay Goel & Alka Goel. | Taxmann’s Publication |
| Quantitative Techniques of Decision Making | Anand Sharma | Himalaya Publishing House |
| Business Statistics Using Excel & SPSS | Nick Lee & Mike | SAGE |
| Business mathematics and statistics | V.R.Nikam | (Chandralok Prakashan) |

 |

**Prepared by:**

**Chairperson HOD:**  Sunil Kadam.

**Faculty Members:**  Dr.Vandana Misra.

Dr.Meena Vazirani

Pradeep Varma.

Dr Ruchi Agrawal

Bhakti Manjrekar

**Approved by:**

**VC Nominee:**  Dr. Anant Phirke

**Subject Expert**

**( outside parent University)**: Prof.Meena Patil (SNDT University.)

                      Dr Dharmendra Yadav

National Institute of Health & Family Welfare (NIHFW), New Delhi.

**Industry representative:**  Mr. Sagar Jajal

**Meritorious Student:** Mr. Kevin Shah