CBCS Syllabus as per NEP 2020 for F.Y.B.Com.
(2023 Pattern)

Name of the Programme	**:** B.Com.
Program Code	**:** UCOM
Class	**:** F.Y.B.Com.
Semester	**:** II
Course Type	**:** Minor Theory
Course Name	**:** Business Statistics
Course Code	**:** COM-161-MN(D)
No. of Credits	**:** 02 credits
No. of Teaching Hours	**:** 30

Course Objectives:

1. The course aims to provide students with a solid understanding of the basic concepts, principles and terminology used in statistics.
2. Familiarize students with essential statistical terms and concepts.
3. Introduce various methods of collection and sampling techniques.
4. Develop skills in creating and interpreting data graphically.
5. Introduction of statistical measures for summarizing data.
6. Discuss different statistical measures for spread of data
7. To develop students ability to think critically about data and statistical analyses.
8. acquire knowledge about the job sequencing.

Course Outcomes:

By the end of the course, students will be able to:

CO1. demonstrate statistical concepts and utilities it in real data analysis.

CO2. organize and summarize data using appropriate statistical measures. Create and interpret data graphically.

CO3. apply statistical concepts and techniques to real-world scenarios and different disciplines.

CO4. familiar with various sampling techniques, their advantages, disadvantages, and applications.

CO5. understand the practical applications of statistical tools in various fields and be able to apply statistical methods to real-world problems.

CO6. cultivate critical thinking skills related to data analysis and interpretation.

CO7. understand the practical applications of job sequencing in real world.

Topics and Learning Points

Unit – 1 : Population and Sample **(4L)**

Definition of Statistics, Scope of Statistics in Economics, Management Science and industry. Concept of population and sample with illustration. Methods of sampling –SRSWR, SRSWOR, Stratified, Systematic, (Description of sampling procedures only).

Unit –2 : **Data condensation and representation** **(6L)**

Data: quantitative and qualitative, attributes, variables, scales of measurement: nominal, ordinal, interval and ratio. Classification of data, frequency distribution, cumulative frequency distribution, Graphical representations: Histogram, frequency polygon, frequency curve, ogive curves. Diagrammatical representations: simple, multiple, subdivided bar diagrams, stem-leaf chart and pie diagram, Examples and problems.

Unit – 3 : Measures of Central Tendency **(8L)**

Concept of central tendency, Measures of central tendency: Mean, median and mode for ungrouped and grouped data. (merits and demerits). Combined mean, change of origin and scale. Geometric mean: definition, merits and demerits. Harmonic mean: definition, merits and demerits. Choice of A.M., G.M. and H.M. Examples and problems. Partition values: quartiles, deciles and percentiles.

Unit – 4 : Measures of Dispersion **(6L)**

Concept of dispersion, Measures of dispersion: Range, Variance, Standard deviation (SD) for grouped and ungrouped data, combined SD Measures of relative dispersion: Coefficient of range, coefficient of variation.

Unit – 5 : Job sequencing **(6L)**

Introduction to Sequencing, Sequencing Problems, Solution to Sequencing Problem -Processing n-jobs through one machine, processing n-jobs through two machines. Example to determine the sequencing and total time required. Also, to find idle time of the machine.

References:

1. Goon A. M., Gupta, M. K. and Dasgupta, B. (1986): Fundamentals of Statistics, Vol. 2, World Press, Calcutta.
2. Goon, Gupta and Dasgupta, Fundamentals of Statistics, The world press private ltd, Kolkata.
3. Gupta S. C. and Kapoor V. K. (1987): Fundamentals of Applied Statistics, S. Chand and Sons, New Delhi.
4. Gupta S. C. and Kapoor V. K.: Fundamentals of Mathematical Statistic, Sultan Chand and Sons,

Daryaganj, New Delhi 110002.

5. Gupta S. P.: Statistical Methods, Sultan Chand and Sons, 23, Daryaganj, New Delhi 110002.
6. Mukhopadhya Parimal (1999): Applied Statistics, New Central Book Agency, Pvt. Ltd. Calcutta.
7. S.C. Gupta, Fundamentals of Statistics, Sultan Chand & Sons, Delhi.
8. Sancheti and Kapoor, Statistics, Sultan Chand & Sons, Delhi
9. V. K. Kapoor, Business Mathematics, Sultan Chand & Sons, Delhi.
10.

Course Outcomes	**Programme Outcomes (POs)**														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15
CO1	3														
CO2	3			2											
CO3					3										
CO4				2											
CO5						3				2					
CO6			3												
CO7							3								

11.

12. Weight: 1 - Partially related 2 - Moderately Related 3 - Strongly related

13.

PO1: A Fundamental Knowledge and Coherent Understanding

CO1. Demonstrate statistical concepts and utilities it in real data analysis.

Weightage: 3 (Strongly related)

Justification: PO1 emphasizes acquiring broad multidisciplinary knowledge, including statistical concepts, which aligns with CO1's objective of demonstrating statistical concepts in real data analysis.

CO2. Organize and summarize data using appropriate statistical measures. Create and interpret data graphically.

Weightage: 3 (Strongly related)

Justification: Acquiring procedural knowledge for skill enhancement (PO2) involves organizing and summarizing data using statistical measures, which aligns with CO2's objective.

PO3: Critical Thinking and Problem-Solving Skills

CO6. Cultivate critical thinking skills related to data analysis and interpretation.

Weightage: 3 (Strongly related)

Justification: CO6 focuses on cultivating critical thinking skills related to data analysis, which aligns with PO3's objective of solving issues in various scenarios, including data analysis.

PO4: Communication Skills

CO2. Organize and summarize data using appropriate statistical measures. Create and interpret data graphically.

Weightage: 2 (Moderately related)

Justification: Effective communication involves presenting data graphically, which is part of CO2's objective and contributes to enhancing communication skills (PO4).

CO4. Familiar with various sampling techniques, their advantages, disadvantages, and applications.

Weightage: 2 (Moderately related)

Justification: Understanding sampling techniques and their applications (CO4) requires clear communication of advantages and disadvantages, contributing to PO4's objective of enhancing communication skills.

PO5: Analytical Reasoning Skills

CO3. Apply statistical concepts and techniques to real-world scenarios and different disciplines.

Weightage: 3 (Strongly related)

Justification: Applying statistical concepts in real-world scenarios (CO3) requires analytical reasoning skills, which align with PO5's objective of evaluating situations and selecting appropriate courses of action.

PO6: Innovation, Employability and Entrepreneurial Skills

CO5. Understand the practical applications of statistical tools in various fields and be able to apply statistical methods to real-world problems.

Weightage: 3 (Strongly related)

Justification: Understanding the practical applications of statistical tools (CO5) contributes to innovation and employability (PO6) by enabling students to apply statistical methods to solve real-world problems.

PO7: Multidisciplinary Competence

CO7. Understand the practical applications of job sequencing in the real world.

Weightage: 3 (Strongly related)

Justification: Understanding practical applications such as job sequencing (CO7) contributes to multidisciplinary competence (PO7) by demonstrating the integration of knowledge across different fields.

PO10: Design and Development of System

CO4. Familiar with various sampling techniques, their advantages, disadvantages, and applications.

Weightage: 2 (Moderately related)

Justification: Familiarity with sampling techniques (CO4) contributes to the design and development of efficient solutions (PO10) by providing foundational knowledge for designing sampling strategies in various systems.