PUNYASHLOK AHILYADEVI HOLKAR

SOLAPUR UNIVERSITY, SOLAPUR

पुण्यश्लोक अहिल्यादेवी होळकर
सोलापूर विद्यापीठ
।। विद्यया संपन्नता ।।

NAAC Accredited-2015

'B' Grade (CGPA 2.62)

Name of the Faculty: Commerce & Management

CHOICE BASED CREDIT SYSTEM

Syllabus:

BUSINESS STATISTICS

(DSC- 3 & 4 E), Credits- 4+4

Name of the Course: B.Com. II (Sem–III & IV)

(Syllabus to be implemented w.e.f. June 2020-21)

PUNYASHLOK AHILYADEVI HOLKAR SOLAPUR UNIVERSITY, SOLAPUR

CBCS Pattern Syllabus

B.Com – II (Sem. – III and IV)

BUSINESS STATISTICS

(DSC- 3 & 4 E), Credits- 4+4

With effect from June – 2020

1) **Preamble :** To familiarize the students with basic concepts of the Business Statistics and a hands on practice of the various statistical tools and techniques are the main intentions of this paper. It will enable them to improve their logical reasoning ability and interpretation of various business results. The course aims at acquainting the students with the emerging issues in business, trade and commerce regarding analyzing business facts.

Semester III

Objectives:-

1. To expose students to basic Statistical concepts.
2. To inculcate an analytical approach to the subject matter.
3. To stimulate the students interest by showing the relevance and use of statistical knowledge.
4. To study and critically analyze statistical reasoning to problems of business.
5. To boost quantitative thinking and develop numerical abilities.
6. To enlighten the student abilities to apply the statistical concepts to real life problems in Commerce, Economics, Management and Social sciences.
7. To improve their logical reasoning ability and interpretation of various statistical results.
8. To prepare a base of various courses like C.A.,C.W.A..M.B.A., etc.

Course Outcomes:-

After completion of this course students will be able to

1) Understand basic Statistical components in Business.
2) Understand the role of Statistics in taking various commercial decisions
3) to make his mind set for taking up entrepreneurship as career.

Semester – III

Marks - 50

Unit	Name of the Topic and Details	Lectures
1	**Introduction to Statistics :** Introduction: Meaning of Statistics. Applications of Statistics in various fields of business. Definition of data. Types of data-Primary and Secondary data, Qualitative and Quantitative data. Definition of Population and Sample. Methods of data collection- Census method and Sampling Method. Advantages of Sampling Method over Census Method. Concepts of Simple Random Sampling (Without replacement and With Replacement) and Stratified Random Sampling. Presentation of data in frequency distribution form- Discrete and Continuous frequency distributions. Relative and Cumulative frequency distributions. Graphical and Diagrammatic Representation: Construction of Histogram, Ogive Curves, Pie Chart, Bar diagram.	15
2	**Measures of Central Tendency :** Meaning of Central Tendency and measure of central tendency. Various measures of central tendency- Arithmetic mean, Geometric mean, Harmonic Mean, Median, Mode, Quartiles. Empirical relation between Mean, Median and Mode. Numerical problems based on various forms of data.	15
3	**Measures of Dispersion:** Meaning of dispersion(or variability) and measure of dispersion. Types- Absolute and Relative measures of dispersion. Various measures of dispersion - Range and coefficient of range, Quartile Deviation and coefficient of quartile deviation, Mean Deviation about median and coefficient of mean deviation about median, Standard Deviation and Coefficient of variation, variance. Numerical problems based on various forms of data.	15
4	**Correlation and Regression:** Meaning of bivariate data and examples. Definition of covariance. Meaning of correlation. Types of Correlation- Positive, Negative, No correlation. Methods of studying correlation- (i) Scatter diagram method, (ii) Karl Pearson's coefficient of correlation ***r*** (for ungrouped data only). Interpretation when r = +1, r = -1 and r = 0. (iii) Spearman's Rank correlation coefficient ***R***. Numerical problems on computations of ***r*** and ***R.*** Meaning of Regression. Lines of regression of Y on X and of X on Y. Equations due to Least Squares method for finding lines of regression of Y on X and of X on Y . Regression coefficients and their relations with Karl Pearson's coefficient of correlation ***r***. Numerical problems on regression coefficients and fitting of lines of regression.	15

Semester – IV

Marks 50

Objectives:-

1) To impart knowledge of basic statistical concepts used in business.
2) To improve their logical reasoning ability and interpretation of various statistical results.
3) To study and critically analyze statistical reasoning to problems of business.

Course Outcomes:-

After completion of the course students will be able to

1) understand the role of probability for taking various decisions in business
2) compare the current trends in business with that in the past
3) measure changes in the value of money at different places and times
4) check the quality of the business process **.**

Unit	Name of the Topic and Details	Lectures
1	**Probability and Probability Distribution**s: **Probability**: Definitions and examples -Experiment, Sample space, Event, Mutually exclusive events, Equally likely events, Exhaustive events, Sure event, Null event, Complementary event and independent events. Mathematical definition of probability, Definition of Conditional Probability. Statements of Addition and Multiplication laws of probability. Problems on Probabilities, Conditional probabilities, Probabilities using Addition and Multiplication laws of probabilities (without use of permutations and combinations). **Probability Distributions:** Definitions- Random Variable, Discrete and Continuous random variables, Probability mass function(p.m.f.), Probability density function (p.d.f.). Binomial Distribution:- Probability mass function (p.m.f.) of binomial distribution with parameters ***n*** and ***p***. Mean, Variance and S.D. of binomial distribution (without proof). Examples of real life situations where binomial distribution is applicable. Numerical problems on binomial distribution. Poisson Distribution:- Probability mass function (p.m.f.) of Poisson distribution with parameter λ. Mean, Variance and S.D. of Poisson distribution (without proof). Examples of real life situations where Poisson distribution is applicable. Numerical problems on Poisson distribution. Normal Distribution:- Probability density function (p.d.f.) of Normal	20

	distribution with parameters μ and σ^2. Notation: $X \sim N(\mu, \sigma^2)$. Properties of Normal distribution. Numerical problems on Normal distribution.	
2	**Index Numbers:** Definition of Index number. Uses (Utilities) of Index numbers. Types of Index numbers- Price, Quantity and Value index numbers. Meaning of current time and base time. Methods of construction of index numbers for price, quantity and value - Simple aggregate method, Average of price or quantity relatives methods using arithmetic mean and geometric mean. Weighted aggregate method, Weighted average of price or quantity relatives methods. Laspeyre's, Paasche's and Fisher's price and quantity index numbers. Numerical problems based on the above methods.	15
3	**Time Series:** Definition of Time Series. Components of Time Series. Methods for measuring secular trends: i) Methods of Moving Averages ii) Method of Least Squares (only for straight line). iii) Method of Progressive Averages. Determination of Seasonal Variation by Simple Average Method. Numerical problems.	13
4	**Statistical Process Control (SPC):** Meaning of quality. Meaning of SPC. Chance and Assignable causes of variations. Meaning of Process control and Product control. Procedure of construction of Shewhart's control chart. Types of Shewhart's control charts- i) Control charts for Mean and Range. ii) Control chart for number of defectives (d-chart or np-chart) for a fixed sample size. iii) Control chart for number of defects per unit (c-chart). Numerical problems on the construction of the above charts.	12

Equivalence:

S. N.	Name of the Old Paper	Name of the New Paper
1	Sem-III: Business Statistics	Sem-III: Business Statistics (DSC- 3 E)
2	Sem-IV: Business Statistics	Sem-IV: Business Statistics (DSC- 4 E)

Reference Books:

1. Fundamentals of Mathematical Statistics- S. C. Gupta and V.K. Kapoor
2. Fundamentals of Applied Statistics- S. C. Gupta and V.K. Kapoor
3. Business Statistics - Bharat Jhunjhunwala
4. Introduction To Statistical Process Control- Douglas C. Montgomery
5. Statistical Methods- S. P. Gupta,
6. Essential Statistics- A. B. Rao
7. Business Statistics- J.K.Sharma
8. Business Statistics :An Applied Orientation- P.K. Viswanathan

Dr. P.M. Dargopatil
Chairman
Sub-committee
CBCS Pattern Syllabus
B.Com – II (Sem. – III and IV)
Business Statistics