

# SHIVAJI UNIVERSITY, KOLHAPUR



Estd. 1962

NAAC 'A' Grade

**Faculty of Commerce & Management**

Syllabus For

**Bachelor of Commerce**

**B. Com. Part II**

**(Sem III & IV)**

**To be implemented from June 2019 onwards.**

(Subject to the modifications that will be made from time to time)

**Shivaji University, Kolhapur**  
**Syllabus of B. Com. (SEM – IV)**  
**(To be introduced from June, 2019)**

**BUSINESS STATISTICS (PAPER-II)**

**Credits-4**

**Course Outcomes**

After completion of this course, the student will be able to

1. Compute unconditional and conditional probabilities and apply laws of probabilities.
2. Identify the applications of Binomial and normal distributions.
3. Measure trend and seasonal variations in time series data.
4. Compute and interpret simple and weighted index numbers.
5. Construct and apply variable and attribute control charts.

**Unit 1: Probability and Probability Distributions (15)**

- 1.1 Definitions of random experiment, sample space, event, equally likely events, mutually exclusive events, independent events, Classical definition of probability.
- 1.2 Definition of conditional probability, Addition and multiplication laws of probability (without proof), Numerical problems (without use of permutation and combination).
- 1.3 Binomial distribution: Probability mass function, Mean and variance (without proof), Simple numerical problems to find probability and parameters.
- 1.4 Normal distribution: Probability density function, Mean and variance (without proof), Properties of normal curve, Standard normal distribution, numerical problems to find probabilities for given area under standard normal curve.

**Unit 2: Time Series Analysis (15)**

- 2.1 Definition and uses of time series.
- 2.2 Components of time series.
- 2.3 Methods of measuring trend: method of semi-averages, method of moving averages, and method of least squares, Numerical problems.
- 2.4 Measurement of seasonal variations using simple average method, Numerical problems.

**Unit 3: Index Numbers (15)**

- 3.1 Need, meaning, and uses of index numbers, Applications of index numbers in share market, Price, quantity, and value index numbers.
- 3.2 Simple index numbers by simple aggregate method and simple average of relatives method (using A. M.), Numerical problems.
- 3.3 Weighted index numbers by Laspeyre's, Paasche's, and Fisher's formulae, Numerical problems.
- 3.4 Problems involved in construction of index numbers.

**Unit 4: Statistical Quality Control****(15)**

- 4.1 Concept of statistical quality control (SQC), Advantages of SQC, Types of variability: chance cause variability and assignable cause variability.
- 4.2 Shewhart control chart and its construction.
- 4.3 Variable control charts: mean ( $\bar{X}$ ) and range ( $R$ ) charts, Numerical problems.
- 4.4 Attributes control charts: control chart for number of defectives ( $np$ -chart) for fixed sample size and control chart for number of defects per unit ( $c$ -chart), Numerical problems.

**Reference Books:**

1. Gupta S. P. (2018) *Statistical methods*, Sultan Chand and Sons.
2. Gupta C. B. and Gupta Vijay (2004) *An Introduction to Statistical Methods*, Vikas Publishing House Pvt Limited.
3. Desai S. S.(2017) *Business Statistics*, Jay-Gauri.
4. Kumbhojkar G. V. (2017) *Business Statistics*, Phadke Prakashan.
5. Gupta S. C. (2019) *Fundamentals of Statistics*, Himalaya Publishing House Pvt. Ltd.