**Name of Teacher: Dr. Nishtha Bhushan**

**July 2022**

**Course: B.Com.(Hons.), Semester: V**

**Paper BCH 5.4(d): BUSINESS STATISTICS**

**Theory + Lab + Tutorial: 4 Credit hrs. (4 Lectures) + 1 Credit hr. (2 Labs per student )+ 1 Credit hr. (2 tutorials per group)**

**Subject Objectives**: To familiarize the students with the basics statistical tools used to summarize and analyze quantitative information for business decision-making.. To give an insight into measures of Central Tendency, Dispersion, Moments, Skewness, Kurtosis, Probability, Probability Distribution, Correlation , Regression. Index Numbers and Time Series.

**LESSON PLAN (July- Nov. 2022)**

**(Unit-wise)**

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| **UNIT/ Lectures and Labs Required** | **TOPICS FOR STUDENT PREPARATION (INPUT)** | **PROCEDURE (Tools)** | **LEARNING OUTCOME (OUTPUT)** | **ASSESSMENT** |
| UNIT 1 : Descriptive Statistics  (12 lectures) | **\*Measures of Central Tendency:** (Arithmetic Mean, Harmonic & Geometric Mean), Positional Averages (Mode & Median, Quartiles, Deciles and Percentiles) with graphic representation.  **\* Measures of Dispersion:** Absolute and Relative (Range, Quartile Deviation, Mean Deviation), Standard Deviation and its coefficients.  **\* Moments** (Skewness, its meaning and measurement and Bowley’s measures and Kurtosis) | \*Lecture and discussion  \*Problem solving with the help of black-board.  \* Using Spreadsheet to calculate measures of central tendency and dispersion. | Should acquire a fair degree of proficiency in comprehending statistical data, processing and analyzing it using descriptive statistical tools. | Evaluation through Assignment |
| UNIT 2 : Probability and Probability Distributions  (12 lectures) | **-**Theory and Approaches of Probability.  - Probability Theorems : Addition and Multiplication.  -Conditional Probability and Bayes’ Theorem.  -Expectation and Variance of a Random Variable. Business Applications.  - Probability Distributions  (Binomial, Poisson and Normal) | \*Lecture and discussion  \*Problem solving with the help of black-board | Gather knowledge about the various probability concepts and distributions and their business applications. | Evaluation through test |
| UNIT 3 : Simple Correlation and Regression Analysis  (10 lectures) | -Correlation Analysis: Meaning and types; Correlation vs. Causation; Pearson’s Coefficient of Correlation; Computation and Properties; Probable and Standard Error; Rank Correlation.  -Regression Analysis; Principle of Least Square and Regression Lines; Regression Equations and Estimation; Properties of Regression Coefficients; Relationship between Correlation and Regression Coefficients; Standard Error of Estimate. | \*Lecture and discussion  \*Problem solving with the help of black-board  \*Use of Spread sheet for calculation of correlation and regression | Understand the relationship between two variables using concepts of correlation and regression and its use in identifying and predicting the variables. | Evaluation through test & Assignment |
| UNIT 4: Index Numbers (8 Lectures) | -Meaning and Uses of Index Numbers; Construction of Index Numbers: Fixed and Chain Base, Univariate and Composite; Methods of Constructing Index Numbers: Aggregate and Average of Relatives- Simple and Weighted.  -Tests of adequacy of index numbers; Base shifting, Splicing and Deflating; Problems in the construction of Index Numbers  - Construction and Utility of CPI, BSE SENSEX and NSE NIFTY |  | Develop an understanding of the index numbers and their ability in daily life and stock market. |  |
| UNIT 5: Time Series Analysis (10 Lectures) | -Time Series Data; Components of time series; Additive and Multiplicative Models.  -Trend Analysis; Fitting of Trend Line using principle of least square- linear, second degree parabola and exponential; Shifting of Origin and Conversion of Annual Linear Trend Equation to quarterly/ monthly basis and vice-versa; Moving Averages.  -Seasonal Variations: Calculation of Seasonal Indices using Simple Averages, Ratio-to-Trend and Ratio-to-Moving Averages methods; Uses of Seasonal Indices. |  | Become aware of the patterns revealed by the time series data and to use it to make predictions for the future. |  |

**Suggested Readings:**

1. Anderson, Sweeney and William.  *Statistics for Students of Economics and Business.* Cengage .
2. Gupta, S.P. and Gupta, Archana.  *Statistical Methods.*  Sultan Chand and Sons, New Delhi.
3. Levin, Richard, David S. Rubin, Rastogi, and Siddqui.  *Statistics for Management,*  Pearson Education.
4. Thukral, J.K.  *Business Statistics,* Taxmann Publications.
5. Vohra, N.D.  *Business Statistics,*  McGraw Hill.
6. Siegel, Andrew F.,  *Practical Business Statistics,* Mc Graw Hill Publishing Co.
7. Spiegel, M.D. *Theory and Problems of Statistics, Schaum’s Outline Series, McGraw Hill Publishing Co.*