SARDAR PATEL UNIVERSITY

THIRD SEMESTER

(EFFECTIVE FROM JUNE, 2011)

SUBJECT: STATISTICS

COURSE CODE: US03CSTA01

(DESCRIPTIVE STATISTICS)

Course credit: 3

No. of lectures per week: 3

All units carry equal Weightage

Weightage: Internal – 30%, External – 70%

Objectives:

The main objective of this course is to acquaint students with some basic concepts in Statistics. They will be introduced to some elementary statistical methods of analysis of data. At the end of this course students are expected to be able to analyze the data.

1. To tabulate statistical information given in descriptive form,

2. To use graphical techniques and interpret,

3. To compute various measures of central tendency, dispersion, skewness,

4. To analyze data pertaining to attributes and to interpret the results,

5. To apply statistics in the various fields.

Unit-I Analysis of Quantitative data-I

- **Types of data**
  - **Quantitative data**
  - **Qualitative data**
- **Measures of central tendency**
  - **Mean, Median, Mode (Derivation of median and mode formula for grouped data)**
  - **Geometric mean**
  - **Harmonic mean**
  - **Weighted mean**
  - **Combined mean**
  - **Merits & demerits**
  - **Properties (with proof)**
  - **Examples**

Unit-II Analysis of Quantitative data-II

- **Partition values and their graphical representation**
- **Measures of Dispersion**
- **Range, Quartile derivation, Mean Derivation, Standard derivation**
- **Coefficient of variation(C.V)**
- **Merits & Demerits**
- **Properties (with proof)**
- **Box-plot**
- **Lorenz curve**
- **Stem – and – Leaf diagram**

- **Raw moments**
- **Central moments**
- **Relationship between raw and central moments**
- **Skewness**
- **Kurtosis**
- **Examples**

Unit-III Index numbers

- **Introduction**
- **Uses of index numbers**
- **Problems in the construction of index number**
- **Methods of constructing index numbers**
  - **Simple (Unweighted) Aggregate method**
  - **Weighted Aggregate method**
    - **Laspeyre's Price Index**
    - **Paasche's Price Index**
    - **Fisher's Price Index**
    - **Marshall Edgeworth Price Index**
- **Tests of consistency of Index number**
  - **Time reversal test**
  - **Factor reversal test**

Unit-IV Vital Statistics

- **Introduction**
- **Uses of Vital statistics**
- **Measurement of Mortality:**
  - **Crude Death Rate (CDR)**
  - **Specific Death Rate (SDR)**
  - **Standardized Death Rate (STDR)**
- **Measurement of Fertility:**
  - **Crude Birth Rate (CBR)**
  - **General Fertility Rate (GFR)**
  - **Specific Fertility Rate (SFR)**
  - **Total Fertility Rate (TFR)**

References:

1. **Fundamentals of Statistics by S.C. Gupta**
2. **Fundamentals of Mathematical Statistics by S.C. Gupta and V.K.Kapoor**
3. **Statistics by S.P.Gupta**
4. **Basic statistics by B.L.Agarwal**
5. **Business Statistics by Ken Black**
6. **Fundamentals of Applied Statistics by S.C. Gupta**