

**OBJECTIVES:** To enable the students

- This paper deals the time series on simple description methods of data, explains the variation, forecasting the future values, control procedures.
- It gives an idea of using index numbers in a range of practical situations, limitations and uses
- The vital statistics enlighten the students in obtaining different mortality, fertility rates thus obtaining the population growth rates and construction and use of life tables in actuarial science.

**COURSE LEARNING OUTCOMES:**

After completion of this course, the students will know about

- 1) time series data, its applications to various fields and components of time series,
- 2) fitting and plotting of various growth curves such as modified exponential, Gompertz and logistic curve,
- 3) fitting of trend by Moving Average method,
- 4) measurement of Seasonal Indices by Ratio-to-Trend , Ratio-to-Moving Average and Link Relative methods,
- 5) Applications to real data by means of laboratory assignments.  
Interpret and use a range of index numbers commonly used in the business sector

**COURSE:**

**TIME SERIES:**

1. Measurement of trend by method of moving averages(odd and even period)
2. Measurement of trend by method of Least squares(linear and parabola)
3. Determination of seasonal indices by method simple averages
4. Determination of seasonal indices by method of Ratio to moving averages
5. Determination of seasonal indices by method of Ratio to trend
6. Determination of seasonal indices by method of Link relatives

**INDEX NUMBERS:**

7. Computation of simple index numbers.
8. Computation of all weighted index numbers.
9. Computation of reversal tests.

**VITAL STATISTICS:**

10. Computation of various Mortality rates
11. Computation of various Fertility rates
12. Computation of various Reproduction rates.
13. Construction of Life Tables

**Note:** Training shall be on establishing formulae in Excel cells and deriving the results. The excel output shall be exported to MS Word for writing inferences.