MANGALORE UNIVERSITY

DEPARTMENT OF STATISTICS

Soft Core	**STP507: Practical VI: Practicals Based on Theory papers (STH503 & STS504)**	**No. of credits: 3**

Course Outcomes:

CO1: Determine how and when to apply different methods of time series analysis and how to test for goodness of fit using the R software coding and in built packages.

CO2: To forecast the time series with specific components using stationary methods, trend methods, and seasonal methods.

CO3: To familiarize the students with the stochastic processes.

CO4: To familiarize the students with the applications of stochastic methods in practical situations.

Practicals on STS504: Time Series Analysis

1. Estimation and elimination of trend component. Variate difference method.
2. Estimation and elimination of Seasonal Component
3. Examining Stationarity. Sample ACF and PACF.
4. Identification of moving average (MA) and Auto regressive(AR) process and its order selection.
5. Yule-Walker estimation for AR(p) model.
6. Fitting MA model using Least squares regression.
7. Residual Analysis and Diagnostic checking.
8. Identification of ARIMA(p d q) process and order selection .
9. Goodness of fit of the model based on AIC and Ljung-Box criteria.

Practicals on STH503 : Stochastic Processes

1. Sample path of a Markov Chain.
2. Stationary probabilities of a Markov Chain.
3. Poisson process Homogeneous and non-homogeneous.
4. Weiner process, hitting time.
5. Branching process