TIME SERIES ANALYSIS

CREDITS: | 3 |

OBJECTIVE:
- It familiarizes the learners and researchers to the theory and practice of time series analysis.

UNIT I - UNIVARIATE STATIONARY TIME-SERIES MODELS   9
Introduction to stochastic process, stationary processes, Wold representation theorem, autocovariance functions, autocorrelation and partial autocorrelation, auto regressive and moving average models,conditions for stationary and invertible process, Box-Jenkins approach, forecasting.

UNIT II - UNIVARIATE NONSTATIONARY PROCESSES   9
Nonstationary process, deterministic and stochastic trends, Integrated process and random walk, random walk with drift, Unit root process-, test for unit root- Dicky Fuller tests, , ARIMA process. Fractional integrated process.

UNIT III - MODELING VOLATILITY CLUSTERING   9
Volatility-Meaning and measurement, Volatility clustering, Econometric models of volatility, ARCH model, GARCH model and its various extensions, testing for ARCH/GARCH effects.

UNIT IV - MULTIVARIATE STATIONARY AND NON-STATIONARY PROCESSES 9
Vector autoregressive model, Granger causality, impulse response function, variance decomposition.

UNIT V - MULTIVARIATE NON-STATIONARY PROCESSES   9
Introduction to cointegration, testing for cointegration: Single-equation approaches: Engle Granger method, Johansen test for cointegration, Vector error correction model.

TOTAL: 45 PERIODS

OUTCOME:
- Learners will be able to understand the techniques of using Time series data for decision making.

REFERENCES:
1. Brooks, C., Introductory Econometrics for Finance, 3rd Edition, Cambridge University Press, 2014.
2. Enders, W., Applied Econometric Time Series, second edition, John Wiley and Sons, 2006.
3. Hamilton, J. D., Time Series Analysis, Princeton University Press, 1994.
4. Johnston J. and DiNardo, J. Econometric Methods. 4th Ed. McGraw-Hill 1997.
5. Maddala G.S. and In-Moo Kim, Unit Roots, Cointegration, and Structural Change, 1998.