

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Time Series Modelling and Forecasting with Applications

Subject Co-ordinator - Prof. Sudeep Bapat

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Time series introduction
- Lecture 2 - Examples of time series data
- Lecture 3 - Stationarity in time series
- Lecture 4 - Weak vs.strong stationarity
- Lecture 5 - Practical session in R-1
- Lecture 6 - Time Series Decomposition
- Lecture 7 - Basic Time Series Processes
- Lecture 8 - Autocorrelation and the Partial Autocorrelation Functions
- Lecture 9 - ACF and PACF for Some Time Series Processes
- Lecture 10 - Practical Session in R-2
- Lecture 11 - Non-Stationary Time Series
- Lecture 12 - Seasonality and its Features
- Lecture 13 - Cyclicalilty and Test for Stationarity
- Lecture 14 - Seasonality and SARIMA Model
- Lecture 15 - Practical Session in R-3
- Lecture 16 - Model Identification
- Lecture 17 - Model Estimation
- Lecture 18 - Diagnostic Checking - 1
- Lecture 19 - Diagnostic Checking - 2
- Lecture 20 - Practical Session in R-4
- Lecture 21 - Forecasting Basics
- Lecture 22 - Measuring Forecast Accuracy
- Lecture 23 - Smoothing Techniques (SMA,EMA)
- Lecture 24 - Double and Triple Exponential Smoothing
- Lecture 25 - Practical Session in R-5
- Lecture 26 - Persistent and Long- Memory Processes : Examples and Implications
- Lecture 27 - ARFIMA Processes
- Lecture 28 - Hurst Exponent - Estimation under ARFIMA
- Lecture 29 - Estimation under ARFIMA

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- Lecture 30 - Practical Session in R-6
- Lecture 31 - Multivariate Time Series Analysis: Examples and Motivation
- Lecture 32 - Cross-covariance and Cross-correlation
- Lecture 33 - Some Specific Multivariate Time Series Models
- Lecture 34 - Further Extensions and Use Cases
- Lecture 35 - Practical Session in R-7
- Lecture 36 - Cointegration and Further
- Lecture 37 - Error Correction Models
- Lecture 38 - Tests for Cointegration
- Lecture 39 - Testing for Causality
- Lecture 40 - Practical Session in R-8
- Lecture 41 - Frequency Domain Analysis
- Lecture 42 - Spectral Representation of a Series
- Lecture 43 - Spectral Density Estimation
- Lecture 44 - Numerical Examples and Further
- Lecture 45 - Practical Session in R-9
- Lecture 46 - Stochastic Volatility Modelling
- Lecture 47 - ARCH Models
- Lecture 48 - ARCH LM Test and GARCH Models
- Lecture 49 - GARCH Model Extensions
- Lecture 50 - Practical Session in R-10
- Lecture 51 - Nonlinear Time Series Models
- Lecture 52 - Regimes and Nonlinear Models
- Lecture 53 - Nonlinear Model Extensions
- Lecture 54 - Markov Switching Models
- Lecture 55 - Practical Session in R-11
- Lecture 56 - Machine Learning in Time Series
- Lecture 57 - Linear Regression for Time Series and Beyond
- Lecture 58 - Other Machine Learning Models for Time Series
- Lecture 59 - Neural Networks for Time Series
- Lecture 60 - Practical Session in R-12