

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

NPTEL Video Course - Electronics and Communication Engineering - Advanced 3G and 4G Wireless Mobile Communication

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

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

- Lecture 1 - Introduction to 3G/4G Standards
- Lecture 2 - Wireless Channel and Fading
- Lecture 3 - Rayleigh Fading and BER of Wired Communication
- Lecture 4 - BER for Wireless Communication
- Lecture 5 - Introduction to Diversity
- Lecture 6 - Multi-antenna Maximal Ratio Combiner
- Lecture 7 - BER with Diversity
- Lecture 8 - Spatial Diversity and Diversity Order
- Lecture 9 - Wireless Channel and Delay Spread
- Lecture 10 - Coherence Bandwidth of the Wireless Channel
- Lecture 11 - ISI and Doppler in Wireless Communications
- Lecture 12 - Doppler Spectrum and Jakes Model
- Lecture 13 - Introduction to CDMA, Spread Spectrum and LFSR
- Lecture 14 - Generation and Properties of PN Sequences
- Lecture 15 - Correlation of PN Sequences and Jammer Margin
- Lecture 16 - CDMA Advantages and RAKE Receiver
- Lecture 17 - Multi-User CDMA Downlink Part I
- Lecture 18 - Multi-User CDMA Downlink Part II
- Lecture 19 - Multi-User CDMA Uplink and Asynchronous CDMA
- Lecture 20 - CDMA Near-Far Problem and Introduction to MIMO
- Lecture 21 - MIMO System Model and Zero-Forcing Receiver
- Lecture 22 - MIMO MMSE Receiver and Introduction to SVD
- Lecture 23 - SVD Based Optimal MIMO Transmission and Capacity
- Lecture 24 - SVD Based Optimal MIMO Transmission and Capacity
- Lecture 25 - OSTBCs and Introduction to V-BLAST Receiver
- Lecture 26 - V-BLAST (Continued) and MIMO Beamforming
- Lecture 27 - Introduction to OFDM and Multi-Carrier Modulation
- Lecture 28 - IFFT Sampling for OFDM
- Lecture 29 - OFDM Schematic and Cyclic Prefix

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- Lecture 30 - OFDM Based Parallelization and OFDM Example
- Lecture 31 - OFDM Example (Continued) and Introduction to MIMO-OFDM
- Lecture 32 - MIMO-OFDM (Continued)
- Lecture 33 - Impact of Carrier Frequency Offset (CFO) in OFDM
- Lecture 34 - PAPR in OFDM Systems and Introduction to SC-FDMA
- Lecture 35 - SC-FDMA (Continued) and Introduction of Wireless Propagation Models
- Lecture 36 - Ground Reflection and Okumura Models
- Lecture 37 - Hata Model and Log Normal Shadowing
- Lecture 38 - Link Budget Analysis
- Lecture 39 - Introduction to Teletraffic Theory
- Lecture 40 - Cellular Traffic Modeling and Blocking Probability