

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

NPTEL Video Course - Computer Science and Engineering - NOC:Randomized Methods in Complexity

Subject Co-ordinator - Prof. Nitin Saxena

Co-ordinating Institute - IIT - Kanpur

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

Lecture 1 - Course Outline  
Lecture 2 - Circuits and Polynomial Identity Testing  
Lecture 3 - Derandomization and Lower Bounds  
Lecture 4 -  $IP=PSPACE$   
Lecture 5 - ACC0 Lower Bounds  
Lecture 6 - ACC0 Lower Bounds (Continued...)  
Lecture 7 - Monotone Circuits  
Lecture 8 - Monotone Circuit Lower Bound and Sunflower Lemma  
Lecture 9 - Undirected Graph Connectivity in randomized logspace  
Lecture 10 - Graph Expansion Properties  
Lecture 11 - Expanders  
Lecture 12 - Error Reduction using Expanders  
Lecture 13 - Ajtai-Komlos-Szemerédi Theorem  
Lecture 14 - Explicit construction of expanders and Zig-Zag product  
Lecture 15 - Spectral analysis of Zig-Zag product  
Lecture 16 - Undirected Path in logspace  
Lecture 17 - Explicit Prg to derandomizing classes  
Lecture 18 - Hardness vs Randomness  
Lecture 19 - Hardness to NW-Generator to PRG  
Lecture 20 - Partial derandomization from worst-case hardness of permanent  
Lecture 21 - Error-correcting codes  
Lecture 22 - Introduction to various linear explicit codes  
Lecture 23 - Introduction of efficient decoding  
Lecture 24 - Local decoding of WH, Reed-Muller and Concatenated codes  
Lecture 25 - Introduction to List Decoding  
Lecture 26 - Local List decoding of WH, RM

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