

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

NPTEL Video Course - Special Lecture Series - ACM Summer School on Graph Theory and Graph Algorithms

Subject Co-ordinator - Dr. N S. Narayanaswamy

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction to Graph Theory - Part 1  
Lecture 2 - Introduction to Graph Theory - Part 2  
Lecture 3 - Introduction to Graph Algorithms - Part 1  
Lecture 4 - Introduction to Graph Algorithms - Part 2  
Lecture 5 - Havel Hakimi Theorem - Part 1  
Lecture 6 - Havel Hakimi Theorem - Part 2  
Lecture 7 - Havel Hakimi Theorem - Part 3  
Lecture 8 - Graph Traversals - Part 1  
Lecture 9 - Graph Traversals - Part 2  
Lecture 10 - Topological Sort and Mengers Theorem - Part 1  
Lecture 11 - Topological Sort and Mengers Theorem - Part 2  
Lecture 12 - Topological Sort and Mengers Theorem - Part 3  
Lecture 13 - Hamiltonian Graphs - Part 1  
Lecture 14 - Hamiltonian Graphs - Part 2  
Lecture 15 - Shortest path Algorithms 1 - Part 1  
Lecture 16 - Shortest path Algorithms 1 - Part 2  
Lecture 17 - Shortest path Algorithms 1 - Part 3  
Lecture 18 - Shortest path Algorithms 1 - Part 4  
Lecture 19 - Matching in Graphs - Part 1  
Lecture 20 - Matching in Graphs - Part 2  
Lecture 21 - Some Graph Theoretic Puzzles - Part 1  
Lecture 22 - Some Graph Theoretic Puzzles - Part 2  
Lecture 23 - Network Flow Algorithms - Part 1  
Lecture 24 - Network Flow Algorithms - Part 2  
Lecture 25 - Network Flow Algorithms - Part 3  
Lecture 26 - Network Flow Algorithms - Part 4  
Lecture 27 - Network Flow Algorithms - Part 5  
Lecture 28 - Network Flow Algorithms - Part 6  
Lecture 29 - Network Flows - Part 1

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Lecture 30 - Network Flows - Part 2  
Lecture 31 - Network Flows - Part 3  
Lecture 32 - Network Flows - Part 4  
Lecture 33 - Turanâ s and Madrurâ s theorem - Part 1  
Lecture 34 - Turanâ s and Madrurâ s theorem - Part 2  
Lecture 35 - NP Computations - Part 1  
Lecture 36 - NP Computations - Part 2  
Lecture 37 - Spectral Graph Theory-I - Part 1  
Lecture 38 - Spectral Graph Theory-I - Part 2  
Lecture 39 - Spectral Graph Theory-I - Part 3  
Lecture 40 - NP Computations II - Part 1  
Lecture 41 - NP Computations II - Part 2  
Lecture 42 - Graph Coloring - Part 1  
Lecture 43 - Graph Coloring - Part 2  
Lecture 44 - Spectral Graph Theory-II - Part 1  
Lecture 45 - Spectral Graph Theory-II - Part 2  
Lecture 46 - NP Computations Reductions - Part 1  
Lecture 47 - NP Computations Reductions - Part 2  
Lecture 48 - NP Computations Reductions - Part 3  
Lecture 49 - Spectral Graph Theory-III - Part 1  
Lecture 50 - Planar Graphs - Part 1  
Lecture 51 - Planar Graphs - Part 2  
Lecture 52 - NP Computations and Approximation Algorithms - Part 1  
Lecture 53 - NP Computations and Approximation Algorithms - Part 2  
Lecture 54 - Spectral Graph Theory-IV - Part 1  
Lecture 55 - Spectral Graph Theory-IV - Part 2  
Lecture 56 - Approximation Algorithms I - Part 1  
Lecture 57 - Approximation Algorithms I - Part 2  
Lecture 58 - Social Network Analysis - Part 1  
Lecture 59 - Social Network Analysis - Part 2  
Lecture 60 - Spectral Graph Theory-V - Part 1  
Lecture 61 - Spectral Graph Theory-V - Part 2  
Lecture 62 - Approximation Algorithms II - Part 1  
Lecture 63 - Approximation Algorithms II - Part 2  
Lecture 64 - Spectral Graph Theory-VI - Part 1  
Lecture 65 - Spectral Graph Theory-VI - Part 2  
Lecture 66 - RSA Crypto - Part 1  
Lecture 67 - RSA Crypto - Part 2  
Lecture 68 - Approximation Algorithms III - Part 1

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Lecture 69 - Approximation Algorithms III - Part 2  
Lecture 70 - Spectral Graph Theory-VII - Part 1  
Lecture 71 - Spectral Graph Theory-VII - Part 2  
Lecture 72 - Exact Exponential Algorithms - Part 1  
Lecture 73 - Exact Exponential Algorithms - Part 2  
Lecture 74 - Interconnection Networks - Part 1  
Lecture 75 - Interconnection Networks - Part 2  
Lecture 76 - Kernelization - Part 1  
Lecture 77 - Kernelization - Part 2  
Lecture 78 - Kernelization - Part 3  
Lecture 79 - Introduction to Parameterized Algorithms - Part 1  
Lecture 80 - Introduction to Parameterized Algorithms - Part 2  
Lecture 81 - Chordal Graphs - Part 1  
Lecture 82 - Chordal Graphs - Part 2  
Lecture 83 - Branching - Part 1  
Lecture 84 - Branching - Part 2  
Lecture 85 - Interval Graphs and Split Graphs - Part 1  
Lecture 86 - Interval Graphs and Split Graphs - Part 2  
Lecture 87 - Vertex cover linear vertex kernel using LP - Part 1  
Lecture 88 - Vertex cover linear vertex kernel using LP - Part 2  
Lecture 89 - Comparability Graphs - Part 1  
Lecture 90 - Comparability Graphs - Part 2  
Lecture 91 - Introduction to Randomized Algorithms and Karger's Min-cut Algorithm - Part 1  
Lecture 92 - Introduction to Randomized Algorithms and Karger's Min-cut Algorithm - Part 2  
Lecture 93 - Probability Methods to Ramsey Number - Part 2  
Lecture 94 - Probability Methods to Ramsey Number - Part 2  
Lecture 95 - Color Coding - Part 1  
Lecture 96 - Color Coding - Part 2  
Lecture 97 - Fast Min-cut Algorithm and its analysis - Part 1  
Lecture 98 - Fast Min-cut Algorithm and its analysis - Part 2  
Lecture 99 - Box Representations of Graphs - Part 1  
Lecture 100 - Box Representations of Graphs - Part 2  
Lecture 101 - Hardness for FPT - Part 1  
Lecture 102 - Hardness for FPT - Part 2  
Lecture 103 - Application of min-cut Algorithm

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

NPTEL Video Course - Special Lecture Series - ACM Summer School in Data Science

Subject Co-ordinator - Prof. Murugaiyan Amirthalingam

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Probability - Part 1  
Lecture 2 - Probability - Part 2  
Lecture 3 - Probability - Part 3  
Lecture 4 - Math Foundation - Part 1  
Lecture 5 - Math Foundation - Part 2  
Lecture 6 - Math Foundation - Part 3  
Lecture 7 - Math Foundation 2 - Part 1  
Lecture 8 - Math Foundation 2 - Part 2  
Lecture 9 - Math Foundation 2 - Part 3  
Lecture 10 - Introduction to probability for Data science - Part 1  
Lecture 11 - Introduction to probability for Data science - Part 2  
Lecture 12 - Introduction to probability for Data science - Part 3  
Lecture 13 - Introduction to Statistics for Data science - Part 1  
Lecture 14 - Introduction to Statistics for Data science - Part 2  
Lecture 15 - Introduction to Statistics for Data science - Part 3  
Lecture 16 - Clustering I - Part 1  
Lecture 17 - Clustering I - Part 2  
Lecture 18 - Clustering I - Part 3  
Lecture 19 - Clustering II - Part 1  
Lecture 20 - Clustering II - Part 2  
Lecture 21 - Clustering II - Part 3  
Lecture 22 - Dimensionality Reduction - Part 1  
Lecture 23 - Dimensionality Reduction - Part 2  
Lecture 24 - Dimensionality Reduction - Part 3  
Lecture 25 - Supervised Learning I - Part 1  
Lecture 26 - Supervised Learning I - Part 2  
Lecture 27 - Supervised Learning I - Part 3  
Lecture 28 - Supervised Learning II - Part 1  
Lecture 29 - Supervised Learning II - Part 2

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

Lecture 30 - Supervised Learning II - Part 3  
Lecture 31 - Supervised Learning III - Part 1  
Lecture 32 - Supervised Learning III - Part 2  
Lecture 33 - Supervised Learning III - Part 3  
Lecture 34 - Linear Models For Classification - Part 1  
Lecture 35 - Linear Models For Classification - Part 2  
Lecture 36 - Linear Models For Classification - Part 3  
Lecture 37 - Tree Based Methods - Part 1  
Lecture 38 - Tree Based Methods - Part 2  
Lecture 39 - SVMs - Part 1  
Lecture 40 - SVMs - Part 2  
Lecture 41 - SVMs - Part 3  
Lecture 42 - Ensemble Methods - Part 1  
Lecture 43 - Ensemble Methods - Part 2  
Lecture 44 - Ensemble Methods - Part 3  
Lecture 45 - Learning Theory - Part 1  
Lecture 46 - Learning Theory - Part 2  
Lecture 47 - Introduction to Probabilistic Modeling - Part 1  
Lecture 48 - Introduction to Probabilistic Modeling - Part 2  
Lecture 49 - Introduction to Probabilistic Modeling - Part 3  
Lecture 50 - Probabilistic/Bayesian Models for Regression - Part 1  
Lecture 51 - Probabilistic/Bayesian Models for Regression - Part 2  
Lecture 52 - Probabilistic/Bayesian Models for Regression - Part 3  
Lecture 53 - Probabilistic Classification, Latent Variable Models - Part 1  
Lecture 54 - Probabilistic Classification, Latent Variable Models - Part 2  
Lecture 55 - Probabilistic Classification, Latent Variable Models - Part 3  
Lecture 56 - Deep Learning I - Part 1  
Lecture 57 - Deep Learning I - Part 2  
Lecture 58 - Deep Learning I - Part 3  
Lecture 59 - Deep Learning II - Part 1  
Lecture 60 - Deep Learning II - Part 2  
Lecture 61 - Deep Learning II - Part 3  
Lecture 62 - Deep Learning III - Part 1  
Lecture 63 - Deep Learning III - Part 2  
Lecture 64 - Deep Learning III - Part 3  
Lecture 65 - Reinforcement learning I - Part 1  
Lecture 66 - Reinforcement learning I - Part 2  
Lecture 67 - Reinforcement learning II - Part 1  
Lecture 68 - Reinforcement learning II - Part 2

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Lecture 69 - Map-Reduce and Spark - Part 1  
Lecture 70 - Map-Reduce and Spark - Part 2  
Lecture 71 - Map-Reduce and Spark - Part 3  
Lecture 72 - Scalable Machine Learning - Part 1  
Lecture 73 - Scalable Machine Learning - Part 2

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

NPTEL Video Course - Special Lecture Series - Topics in Theoretical Computer Science

Subject Co-ordinator - Dr. N S. Narayanaswamy

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Finite Automata  
Lecture 2 - TMs, Halting Problems  
Lecture 3 - Concurrency  
Lecture 4 - Blockchain and Bitcoin  
Lecture 5 - Complexity Theory  
Lecture 6 - Lower Bounds, Dealing with NP hardness  
Lecture 7 - Online and streaming algorithms  
Lecture 8 - Zero Knowledge Proofs  
Lecture 9 - Verification, Games

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

NPTEL Video Course - Special Lecture Series - Researching Anglo-Indians in India and the Diaspora

Subject Co-ordinator - Prof. Merin Simi Raj

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Keynote Address

Lecture 2 - A Synopsis of 'Two Cheers'

Lecture 3 - Higher Education Among Anglo-Indians

Lecture 4 - Perception of trust, risk and intimacy among elderly Anglo-Indians living in Tollygunge home in K

Lecture 5 - The Daunting Spirit and the Empowering Voice of Eunice De Souza

Lecture 6 - Origin Myth and Anglo-Indian Identity

Lecture 7 - Keynote Address

Lecture 8 - Shame and Guilt in Alison McQueens The Secret Children

Lecture 9 - Re-visiting McCluskieganj

Lecture 10 - The Imaging of the Anglo-Indian Woman in Colonialist Literature

Lecture 11 - Expostulating Celluloid Stereotypes

Lecture 12 - Chutney Mary

Lecture 13 - In Search of a New Home

Lecture 14 - (Re)discovering Anglo-Indians of Visakhapatnam - An Overview

Lecture 15 - Genealogy of Sporting Culture through a Study of Anglo-Indian Institutions of Asansol

Lecture 16 - Keynote Address

Lecture 17 - Crowdsourcing as a Research Tool

Lecture 18 - Researching Community, Writing Cultures

Lecture 19 - Revisiting the Anglo-Indian Community

Lecture 20 - Minoritizing English



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

NPTEL Video Course - Special Lecture Series - Dravidian Temple Architecture and Construction Techniques

Subject Co-ordinator - Unknown

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction to Dravidian Temple Architecture and Construction Techniques - Part 1  
Lecture 2 - Introduction to Dravidian Temple Architecture and Construction Techniques - Part 2  
Lecture 3 - Introduction to Dravidian Temple Architecture and Construction Techniques - Part 3  
Lecture 4 - Introduction to Dravidian Temple Architecture and Construction Techniques - Part 4  
Lecture 5 - Introduction to Dravidian Temple Architecture and Construction Techniques - Part 5  
Lecture 6 - Naal Kurithal - Part 1  
Lecture 7 - Naal Kurithal - Part 2  
Lecture 8 - Naal Kurithal - Part 3  
Lecture 9 - Naal Kurithal - Part 4  
Lecture 10 - Naal Kurithal - Part 5  
Lecture 11 - Naal Kurithal - Part 6  
Lecture 12 - Ayadhi Calculations - Part 1  
Lecture 13 - Ayadhi Calculations - Part 2  
Lecture 14 - Ayadhi Calculations - Part 3  
Lecture 15 - Ayadhi Calculations - Part 4  
Lecture 16 - Ayadhi Calculations - Part 5  
Lecture 17 - Ayadhi Calculations - Part 6  
Lecture 18 - Ayadhi Calculations - Part 7  
Lecture 19 - Ayadhi Calculations - Part 8  
Lecture 20 - Ayadhi Calculations - Part 9  
Lecture 21 - Ayadhi Calculations - Part 10  
Lecture 22 - Ayadhi Calculations - Part 11  
Lecture 23 - Alavukal - Part 1  
Lecture 24 - Alavukal - Part 2  
Lecture 25 - Alavukal - Part 3  
Lecture 26 - Alavukal - Part 4  
Lecture 27 - Alavukal - Part 5  
Lecture 28 - Alavukal - Part 6  
Lecture 29 - Dhisai Aridhal - Part 1

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Lecture 30 - Dhisai Aridhal - Part 2  
Lecture 31 - Dhisai Aridhal - Part 3  
Lecture 32 - Dhisai Aridhal - Part 4  
Lecture 33 - Dhisai Aridhal - Part 5  
Lecture 34 - Site Analysis - Part 1  
Lecture 35 - Site Analysis - Part 2  
Lecture 36 - Site Analysis - Part 3  
Lecture 37 - Site Analysis - Part 4  
Lecture 38 - Site Analysis - Part 5  
Lecture 39 - Site Analysis - Part 6  
Lecture 40 - Site Analysis - Part 7  
Lecture 41 - Site Analysis - Part 8  
Lecture 42 - Site Analysis - Part 9  
Lecture 43 - Formulation of Structure - Part 1  
Lecture 44 - Formulation of Structure - Part 2  
Lecture 45 - Formulation of Structure - Part 3  
Lecture 46 - Formulation of Structure - Part 4  
Lecture 47 - Formulation of Structure - Part 5  
Lecture 48 - Formulation of Structure - Part 6  
Lecture 49 - Formulation of Structure - Part 7  
Lecture 50 - Formulation of Structure - Part 8  
Lecture 51 - Formulation of Structure - Part 9  
Lecture 52 - Formulation of Structure - Part 10  
Lecture 53 - Formulation of Structure - Part 11  
Lecture 54 - Formulation of Structure - Part 12  
Lecture 55 - Formulation of Structure - Part 13  
Lecture 56 - Formulation of Structure - Part 14  
Lecture 57 - Formulation of Structure - Part 15  
Lecture 58 - Formulation of Structure - Part 16  
Lecture 59 - Formulation of Structure - Part 17  
Lecture 60 - Formulation of Structure - Part 18  
Lecture 61 - Formulation of Structure - Part 19  
Lecture 62 - Formulation of Structure - Part 20  
Lecture 63 - Formulation of Structure - Part 21  
Lecture 64 - Formulation of Structure - Part 22  
Lecture 65 - Formulation of Structure - Part 23  
Lecture 66 - Formulation of Structure - Part 24  
Lecture 67 - Formulation of Structure - Part 25  
Lecture 68 - Formulation of Structure - Part 26

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Lecture 69 - Formulation of Structure - Part 27  
Lecture 70 - Formulation of Structure - Part 28  
Lecture 71 - Formulation of Structure - Part 29  
Lecture 72 - Formulation of Structure - Part 30  
Lecture 73 - Formulation of Structure - Part 31  
Lecture 74 - Formulation of Structure - Part 32  
Lecture 75 - Formulation of Structure - Part 33  
Lecture 76 - Formulation of Structure - Part 34  
Lecture 77 - Formulation of Structure - Part 35  
Lecture 78 - Formulation of Structure - Part 36  
Lecture 79 - Formulation of Structure - Part 37  
Lecture 80 - Formulation of Structure - Part 38  
Lecture 81 - Formulation of Structure - Part 39  
Lecture 82 - Formulation of Structure - Part 40  
Lecture 83 - Formulation of Structure - Part 41  
Lecture 84 - Formulation of Structure - Part 42  
Lecture 85 - Formulation of Structure - Part 43  
Lecture 86 - Formulation of Structure - Part 44  
Lecture 87 - Formulation of Structure - Part 45  
Lecture 88 - Formulation of Structure - Part 46  
Lecture 89 - Characteristics of a Mandapam - Part 1  
Lecture 90 - Characteristics of a Mandapam - Part 2  
Lecture 91 - Characteristics of a Mandapam - Part 3  
Lecture 92 - Characteristics of a Mandapam - Part 4  
Lecture 93 - Characteristics of a Mandapam - Part 5  
Lecture 94 - Characteristics of a Mandapam - Part 6

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

NPTEL Video Course - Special Lecture Series - ACM Summer School in Data Science (Bangalore)

Subject Co-ordinator - Unknown

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Web Browser Security  
Lecture 2 - Trusted Computing  
Lecture 3 - Buffer Overflow Vulnerability and Protection Techineques  
Lecture 4 - Secure Software Engineering  
Lecture 5 - Challenges and Opportunities with Cloud Security  
Lecture 6 - Cognitive Security with Watson  
Lecture 7 - IBM MaaS360 Architecture Overview  
Lecture 8 - Unified Risk Management Approach  
Lecture 9 - Data Encryption and Post Quantum Cryptography (PQC)  
Lecture 10 - Network Security - I  
Lecture 11 - Network Security - II  
Lecture 12 - Network Security - III  
Lecture 13 - Network Security - IV  
Lecture 14 - Network Security - V  
Lecture 15 - Network Security - VI  
Lecture 16 - Security  
Lecture 17 - Security  
Lecture 18 - Security  
Lecture 19 - Security Gap Analysis - I  
Lecture 20 - Security Gap Analysis - II

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

NPTEL Video Course - Special Lecture Series - ACM Summer School on Algorithmic Game Theory

Subject Co-ordinator - Prof. Meghana Nasre

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction to Stable Matchings  
Lecture 2 - Men-Optimality of the Men-Proposing Gale-Shapley Algorithm  
Lecture 3 - GS  
Lecture 4 - GS  
Lecture 5 - The Hospital Residents Problem  
Lecture 6 - Popular Matchings in the stable marriage problem  
Lecture 7 - Popularity in the House Allocation Problem - 1  
Lecture 8 - Popularity in the House Allocation Problem - 2  
Lecture 9 - Strategic Behavior in Popular Matchings  
Lecture 10 - Stable Roommates  
Lecture 11 - An Introduction to Voting  
Lecture 12 - The Game of Trust - Nicky Case's Interactive Essay  
Lecture 13 - Arrow's Theorem  
Lecture 14 - Gibbard-Satterthwaite Theorem  
Lecture 15 - Domain Restrictions and Multiwinner Elections  
Lecture 16 - Incentive Design in Crowdsourcing Applications  
Lecture 17 - Adversarial Approaches in Deep Learning - Part 1  
Lecture 18 - Adversarial Approaches in Deep Learning - Part 2  
Lecture 19 - Algorithmic for Computing Market Equilibrium  
Lecture 20 - Tournament Fixing and Superkings  
Lecture 21 - Tournament Fixing Parameterized by FAS  
Lecture 22 - Tournament Fixing with Bribery  
Lecture 23 - An Introduction to Cake-Cutting  
Lecture 24 - Two Algorithms for Finding Proportional Allocations  
Lecture 25 - Envy-Freeness and Approximate EF  
Lecture 26 - Sperner's Lemma and Applications  
Lecture 27 - Cake Cutting with a Secret Agent  
Lecture 28 - Fairness Notions for Indivisible Goods  
Lecture 29 - Computing EF1 Allocations

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- Lecture 30 - An Introduction to Rent Division
- Lecture 31 - Rent Division and Maximum Weight Matchings
- Lecture 32 - Hall's Theorem and Maximin Share
- Lecture 33 - Probability Review - Part 1
- Lecture 34 - Probability Review - Part 2
- Lecture 35 - Predicting Election Outcomes
- Lecture 36 - Reservoir Sampling and Preference Elicitation

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

NPTEL Video Course - Special Lecture Series - ACM Summer School on Graph Theory and Graph Algorithms (Dr. N.S.

Subject Co-ordinator - Dr. N.S. Narayanaswamy

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Basic Graph theory and Graph Algorithms - Part 1  
Lecture 2 - Basic Graph theory and Graph Algorithms - Part 2  
Lecture 3 - Basic Graph theory and Graph Algorithms - Part 3  
Lecture 4 - Basic Graph theory and Graph Algorithms - Part 4  
Lecture 5 - Basic Graph theory and Graph Algorithms - Part 5  
Lecture 6 - Geometric Algorithms - Part 1  
Lecture 7 - Geometric Algorithms - Part 2  
Lecture 8 - Geometric Algorithms - Part 3  
Lecture 9 - Geometric Algorithms - Part 4  
Lecture 10 - Geometric Algorithms - Part 5  
Lecture 11 - Geometric Algorithms - Part 6  
Lecture 12 - Introduction to Computational Complexity, P, NP classes  
Lecture 13 - NPC Reductions through examples - Part 1  
Lecture 14 - NPC Reductions through examples - Part 2  
Lecture 15 - NPC Reductions through examples - 3SAT  
Lecture 16 - Subset Sum, Knapsack  
Lecture 17 - Directed Hamiltonian Path-NPC Reduction  
Lecture 18 - Introduction to LP Duality theorem  
Lecture 19 - Design of Approx. algorithms using primal dual scheme - Hitting set  
Lecture 20 - Approx Vertex Cover  
Lecture 21 - Approx for Min Cost VC, Approx for Min cost Set Cover  
Lecture 22 - 2-factor approx for metric TSP, 1.5 Approx christofides Algo  
Lecture 23 - knapsack Approx, 1/2 - factor Approx, 1-  $\epsilon$  Approx  
Lecture 24 - Perfect graphs, weak and strong perfect graph conjecture, line graphs, interval graphs  
Lecture 25 -  $\hat{1}$  perfection of interval graphs, chordal graphs, expansion lemma, proof for weak perfect conjecture  
Lecture 26 -  $\hat{1}$  perfection of interval graphs, chordal graphs, expansion lemma, proof for weak perfect conjecture  
Lecture 27 - Comparability graph, Permutation graphs, AT-free graphs, Trapezoidal graphs, Circular arc graphs  
Lecture 28 - Fixed Parameter Algorithms, -VC, Cluster vertex deletion, - Branching  
Lecture 29 - Kernelization, -VC, Crown Decomposition, Feedback vertex set, Iterative compression, Analysing bra

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Lecture 30 - Kernelization, -VC, CrownDecomposition, Feedback vertex set, Herative compression, Analysing bra  
Lecture 31 - Kernelization, -VC, CrownDecomposition, Feedback vertex set, Herative compression, Analysing bra  
Lecture 32 - Hardness in Parameterized Complexity - W - hard reductions Exponential algorithms - Part 1  
Lecture 33 - Hardness in Parameterized Complexity - W - hard reductions Exponential algorithms - Part 2



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

NPTEL Video Course - Special Lecture Series - ACM Summer School on Compiler Design and Construction

Subject Co-ordinator - Prof. Subhajit Roy

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Lattice Theory - Part 1  
Lecture 2 - Lattice Theory - Part 2  
Lecture 3 - Lattice Theory - Part 3  
Lecture 4 - Lattice Theory - Part 4  
Lecture 5 - Lattice Theory - Part 5  
Lecture 6 - Lattice Theory - Part 6  
Lecture 7 - Lattice Theory - Part 7  
Lecture 8 - Lattice Theory - Part 8  
Lecture 9 - Lattice Theory - Part 9  
Lecture 10 - Machine Dependent Optimizations - Part 1  
Lecture 11 - Machine Dependent Optimizations - Part 2  
Lecture 12 - Machine Dependent Optimizations - Part 3  
Lecture 13 - Machine Dependent Optimizations - Part 4  
Lecture 14 - Machine Dependent Optimizations - Part 5  
Lecture 15 - Machine Dependent Optimizations - Part 6  
Lecture 16 - Machine Dependent Optimizations - Part 7  
Lecture 17 - Machine Dependent Optimizations - Part 8  
Lecture 18 - Machine Dependent Optimizations - Part 9  
Lecture 19 - Machine Dependent Optimizations - Part 10  
Lecture 20 - Program Execution Environment - Part 1  
Lecture 21 - Program Execution Environment - Part 2  
Lecture 22 - Program Execution Environment - Part 3  
Lecture 23 - Program Execution Environment - Part 4  
Lecture 24 - Program Execution Environment - Part 5  
Lecture 25 - Program Execution Environment - Part 6  
Lecture 26 - Program Execution Environment - Part 7  
Lecture 27 - Program Execution Environment - Part 8  
Lecture 28 - Optimizing Virtual Function Calls  
Lecture 29 - High Level Optimizations - Part 1

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

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Lecture 30 - High Level Optimizations - Part 2  
Lecture 31 - High Level Optimizations - Part 3  
Lecture 32 - High Level Optimizations - Part 4  
Lecture 33 - High Level Optimizations - Part 5  
Lecture 34 - High Level Optimizations - Part 6

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

NPTEL Video Course - Special Lecture Series - ACM Summer School on Geometric Algorithms and their Application

Subject Co-ordinator - Prof. Arijit Bishnu

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction to Computational Geometry  
Lecture 2 - Convex hull  
Lecture 3 - Quick hull  
Lecture 4 - Plane sweep algorithm  
Lecture 5 - Voronoi Diagram - I  
Lecture 6 - Convex Geometry - I  
Lecture 7 - Convex Geometry - II  
Lecture 8 - Incidence Geometry - I  
Lecture 9 - Incidence Geometry - II  
Lecture 10 - Plane sweep algorithm  
Lecture 11 - Polygon Triangulation  
Lecture 12 - Geometric and Abstract Simplicial Complexes  
Lecture 13 - Convex Polytopes and Polyhedra  
Lecture 14 - Art Gallery Theorem  
Lecture 15 - Smallest Enclosing Disc  
Lecture 16 - Point Hyperplane Duality  
Lecture 17 - Voronoi Diagrams and Delaunay triangulations - I  
Lecture 18 - Voronoi Diagrams and Delaunay triangulations - II  
Lecture 19 - Point Location  
Lecture 20 - Range Searching (KD Tree)  
Lecture 21 - Range Searching (Range Tree)  
Lecture 22 - Visibility Graph and motion planning  
Lecture 23 - Geometric Approximation  
Lecture 24 - Application of incidence geometry in combinatorics  
Lecture 25 - Robot motion planning and visibility  
Lecture 26 - Reeb Graph Introduction and Morse Theory basics  
Lecture 27 - Reeb Graph Properties  
Lecture 28 - Reeb Graph Algorithms, Applications  
Lecture 29 - Arrangements - I

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

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- Lecture 30 - Linear Programming
- Lecture 31 - Arrangements - II
- Lecture 32 - Zone Theorem and Application
- Lecture 33 - Randomized Incremental Construction - I
- Lecture 34 - Randomized Incremental Construction - II
- Lecture 35 - VC-dimension, Epsilon-nets, LP-based approximation for Geometric Covering
- Lecture 36 - Quasi-uniform Sampling for Weighted Covering Problems.
- Lecture 37 - Local Search for Packing and Covering
- Lecture 38 - PTAS via Local Search - I

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

NPTEL Video Course - Special Lecture Series - ACM Summer School on Algorithmic and Theoretical Aspects of Machine Learning

Subject Co-ordinator - Meenakshi D'Souza

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Learning on Finite State Automata and Decision Session - 1  
Lecture 2 - Learning on Finite State Automata and Decision Session - 2  
Lecture 3 - Learning on Finite State Automata and Decision Session - 3  
Lecture 4 - Probability Session - 1  
Lecture 5 - Probability Session - 2  
Lecture 6 - Probability Session - 3  
Lecture 7 - Probability Session - 4  
Lecture 8 - Probability Session - 5  
Lecture 9 - Probability Session - 6  
Lecture 10 - Probability Session - 7  
Lecture 11 - Probability Session - 8  
Lecture 12 - Probability Session - 9  
Lecture 13 - Probability Session - 10  
Lecture 14 - Algebra for Machine Learning Session - 1  
Lecture 15 - Algebra for Machine Learning Session - 2  
Lecture 16 - Algebra for Machine Learning Session - 3  
Lecture 17 - Cryptography and Machine Learning  
Lecture 18 - Neural Networks Session - 1  
Lecture 19 - Neural Networks Session - 2  
Lecture 20 - Neural Networks Session - 3  
Lecture 21 - Neural Networks Session - 4  
Lecture 22 - Neural Networks Session - 5  
Lecture 23 - Enterprise Applications of ML Session - 1  
Lecture 24 - Basic of Algorithm Design Session - 1  
Lecture 25 - Basic of Algorithm Design Session - 2  
Lecture 26 - Basic of Algorithm Design Session - 3  
Lecture 27 - Basic of Algorithm Design Session - 4  
Lecture 28 - Introduction to Optimization Session - 1  
Lecture 29 - Introduction to Optimization Session - 2

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

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Lecture 30 - Introduction to Reinforcement Learning Session - 1  
Lecture 31 - Introduction to Reinforcement Learning Session - 2  
Lecture 32 - Introduction to Reinforcement Learning Session - 3  
Lecture 33 - Introduction to Reinforcement Learning Session - 4  
Lecture 34 - Introduction to Reinforcement Learning Session - 5  
Lecture 35 - Introduction to Reinforcement Learning Session - 6  
Lecture 36 - Introduction to Reinforcement Learning Session - 7  
Lecture 37 - Introduction of Cryptography Session - 1  
Lecture 38 - Introduction of Cryptography Session - 2  
Lecture 39 - Introduction of Cryptography Session - 3  
Lecture 40 - Compressive Sensing Session - 1  
Lecture 41 - Compressive Sensing Session - 2  
Lecture 42 - Compressive Sensing Session - 3  
Lecture 43 - Compressive Sensing Session - 4  
Lecture 44 - Compressive Sensing Session - 5  
Lecture 45 - Compressive Sensing Session - 6  
Lecture 46 - Compressive Sensing Session - 7  
Lecture 47 - Compressive Sensing Session - 8

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

NPTEL Video Course - Special Lecture Series - ACM Winter School on Hybrid Cloud

Subject Co-ordinator - Prof. Sashikumar Ganesan

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Department Introduction  
Lecture 2 - Introduction to Cloud Computing - Part 1  
Lecture 3 - Introduction to Cloud Computing - Part 2  
Lecture 4 - Cloud IaaS and Virtualization  
Lecture 5 - System Virtualization  
Lecture 6 - Mechanisms for System Virtualization  
Lecture 7 - Containers - Part 1  
Lecture 8 - Containers - Part 2  
Lecture 9 - AI and Hybrid Cloud  
Lecture 10 - Container Orchestration - Part 1  
Lecture 11 - Container Orchestration - Part 2  
Lecture 12 - Container Orchestration - Part 3  
Lecture 13 - Application Devops - Part 1  
Lecture 14 - Application Devops - Part 2  
Lecture 15 - Application Devops - Part 3  
Lecture 16 - Application Devops - Part 4  
Lecture 17 - Application Devops - Part 5  
Lecture 18 - Application Devops - Part 6  
Lecture 19 - Cloud as Distributed System - Part 1  
Lecture 20 - Cloud as Distributed System - Part 2

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

NPTEL Video Course - Special Lecture Series - ACM Indian Summer School on Programming Languages: Principles and Practice

Subject Co-ordinator - Dr. Abhijat Vichare

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Review of Basic Concepts - Dr. Abhijat Vichare - Session - 1  
Lecture 2 - Review of Basic Concepts - Dr. Abhijat Vichare - Session - 2  
Lecture 3 - Review of Basic Concepts - Dr. Abhijat Vichare - Session - 3  
Lecture 4 - Introduction to Lex and Yacc - Sameera Deshpande - Session - 1  
Lecture 5 - Introduction to Lex and Yacc - Sameera Deshpande - Session - 2  
Lecture 6 - Hello world, Revisiting the first program we write in c - Siddhesh Poyarekar - Session - 1  
Lecture 7 - Compiler as system - Vivek Buzruk - Session - 1  
Lecture 8 - Compiler as system - Vivek Buzruk - Session - 2  
Lecture 9 - Introduction to Data Flow Analysis - Prof. Uday Khedker - Session - 1  
Lecture 10 - Introduction to Data Flow Analysis - Prof. Uday Khedker - Session - 2  
Lecture 11 - Introduction to Data Flow Analysis - Prof. Uday Khedker - Session - 3  
Lecture 12 - Introduction to Data Flow Analysis - Prof. Uday Khedker - Session - 4  
Lecture 13 - Introduction to Data Flow Analysis - Prof. Uday Khedker - Session - 5  
Lecture 14 - Introduction to Data Flow Analysis - Prof. Uday Khedker - Session - 6  
Lecture 15 - Undefined Behavior Compiler Optimization - Prathamesh K Session - 1  
Lecture 16 - Program Semantics - Prof. Subhajit Roy Session - 1  
Lecture 17 - Program Semantics - Prof. Subhajit Roy Session - 2  
Lecture 18 - Program Semantics - Prof. Subhajit Roy Session - 3  
Lecture 19 - Program Semantics - Prof. Subhajit Roy Session - 4  
Lecture 20 - Program Semantics - Prof. Subhajit Roy Session - 5  
Lecture 21 - Program Semantics - Prof. Subhajit Roy Session - 6  
Lecture 22 - Program Semantics - Prof. Subhajit Roy Session - 7  
Lecture 23 - Program Semantics - Prof. Subhajit Roy Session - 8  
Lecture 24 - Introduction to Optimizations - Prof. V. Krishna N Session - 1  
Lecture 25 - Introduction to Optimizations - Prof. V. Krishna N Session - 2  
Lecture 26 - Introduction to Optimizations - Prof. V. Krishna N Session - 3  
Lecture 27 - Introduction to Optimizations - Prof. V. Krishna N Session - 4  
Lecture 28 - Compiler as system - Vivek S. Buzruk Session - 1  
Lecture 29 - Compiler as system - Vivek S. Buzruk Session - 2

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

NPTEL Video Course - Special Lecture Series - ACM Winter School 2019 on High Performance Computing

Subject Co-ordinator - Dr. Mainak Chaudhuri

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Basics of Computer Architecture and OS
- Lecture 2 - An Introduction to High Performance Computing
- Lecture 3 - Introduction to OpenMP
- Lecture 4 - Advanced OpenMP
- Lecture 5 - Introduction to MPI
- Lecture 6 - Advanced MPI
- Lecture 7 - Supercomputing in India
- Lecture 8 - Job Scheduling
- Lecture 9 - Introduction to GPU
- Lecture 10 - Introduction to Open ACC
- Lecture 11 - CPU and GPU Memory
- Lecture 12 - Optimizations and GPU Profiling
- Lecture 13 - CUDA C
- Lecture 14 - HPC Networking - I
- Lecture 15 - HPC Networking - II
- Lecture 16 - Research in HPS
- Lecture 17 - Case Study - Parallel Graph Algorithms
- Lecture 18 - Case Study - Solving PDEs at Extreme Scale

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

NPTEL Video Course - Special Lecture Series - Thermodynamics of Materials

Subject Co-ordinator - Prof. Sir H. K. D. H. Bhadeshia

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Basic thermodynamic functions: Enthalpy, entropy, configurational entropy, Gibbs free energy
- Lecture 2 - State of equilibrium: Chemical potential, activity, equilibrium between solutions
- Lecture 3 - Case study: Mechanical alloying, alloying by deformation.
- Lecture 4 - Computer calculation of phase diagrams
- Lecture 5 - Thermodynamics of irreversible processes: Multiple irreversible processes
- Lecture 6 - Quasichemical solutions

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

NPTEL Video Course - Special Lecture Series - ACM India Summer School on Program Execution

Subject Co-ordinator - Unknown

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - ACM Summer School on Program Execution - Introduction  
Lecture 2 - Basics of Architecture - Part 1  
Lecture 3 - Basics of Architecture - Part 2  
Lecture 4 - Basics of Architecture - Part 3  
Lecture 5 - Basics of Architecture - Part 4  
Lecture 6 - A Review of Architectural Features for supporting Program Execution - Part 1  
Lecture 7 - A Review of Architectural Features for supporting Program Execution - Part 2  
Lecture 8 - A Review of Architectural Features for supporting Program Execution - Part 3  
Lecture 9 - A Review of Architectural Features for supporting Program Execution - Part 4  
Lecture 10 - Review of OS - IPC and beyond - Part 1  
Lecture 11 - Review of OS - IPC and beyond - Part 2  
Lecture 12 - From Programs to Processes (and threads) - Part 1  
Lecture 13 - From Programs to Processes (and threads) - Part 2  
Lecture 14 - Network Protocol Fundamentals  
Lecture 15 - Web protocols and Web Software - Part 1  
Lecture 16 - Web protocols and Web Software - Part 2  
Lecture 17 - Storage Systems - Part 1  
Lecture 18 - Storage Systems - Part 2  
Lecture 19 - Storage Systems - Part 3  
Lecture 20 - Basics of High Performance Computing - Part 1  
Lecture 21 - Basics of High Performance Computing - Part 2  
Lecture 22 - Basics of High Performance Computing - Part 3  
Lecture 23 - The Evolution of Linux as an Enterprise Operating System  
Lecture 24 - The Hypervisor - Lord of the Rings - Part 1  
Lecture 25 - The Hypervisor - Lord of the Rings - Part 2  
Lecture 26 - Hands on Lab - Create a VM and Play  
Lecture 27 - Containers and Kubernetes Era - Part 1  
Lecture 28 - Containers and Kubernetes Era - Part 2  
Lecture 29 - Containers and Kubernetes Era - Part 3

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

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Lecture 30 - The Future of Compute - Part 1

Lecture 31 - The Future of Compute - Part 2

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

NPTEL Video Course - Special Lecture Series - ACM India Summer School on Programming Language Analysis and Op

Subject Co-ordinator - Girish Bharambe

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Panel Discussion Q and A - Part 1  
Lecture 2 - Panel Discussion Q and A - Part 2  
Lecture 3 - Runtime and Linkers - Discussion - 1  
Lecture 4 - Runtime and Linkers - Discussion - 2  
Lecture 5 - Runtime and Linkers - Linkers  
Lecture 6 - Runtime and Linkers - Program Execution - Loader  
Lecture 7 - Runtime and Linkers - Static Libraries - Dynamic Linking  
Lecture 8 - Code Generation and Backend - An Introduction to LLVM Backend  
Lecture 9 - Code Generation and Backend - An Introduction to Loop Backend  
Lecture 10 - Code Generation and Backend - Code Generation with LLVM - Part 1  
Lecture 11 - Code Generation and Backend - Code Generation with LLVM - Part 2  
Lecture 12 - Machine Independent Optimizations - High Level Optimizations - 1  
Lecture 13 - Machine Independent optimizations - High Level Optimizations - 2  
Lecture 14 - Machine Independent optimizations - High Level Optimizations - 3  
Lecture 15 - Machine Independent optimizations - High Level Optimizations - 4  
Lecture 16 - Machine Independent optimizations - High Level Optimizations - 5  
Lecture 17 - Machine Independent optimizations - High Level Optimizations - 6  
Lecture 18 - Machine Architecture and Machine Dependent Optimizations - Machine Architecture - 1  
Lecture 19 - Machine Architecture and Machine Dependent Optimizations - Machine Architecture - 2  
Lecture 20 - Machine Architecture and Machine Dependent Optimizations - Machine Architecture - 3  
Lecture 21 - Machine Architecture and Machine Dependent Optimizations - Register Allocation - 1  
Lecture 22 - Machine Architecture and Machine Dependent Optimizations - Register Allocation - 2  
Lecture 23 - Machine Architecture and Machine Dependent Optimizations - Register Allocation - 3  
Lecture 24 - Machine Architecture and Machine Dependent Optimizations - Instruction Scheduling - 1  
Lecture 25 - Machine Architecture and Machine Dependent Optimizations - Instruction Scheduling - 2  
Lecture 26 - Machine Dependent Optimizations - Dependence Analysis and Loop transformations - 1  
Lecture 27 - Machine Dependent Optimizations - Dependence Analysis and Loop transformations - 2  
Lecture 28 - Control-Flow Analyses and Static Single Assignment form - Control Flow Analysis - 1  
Lecture 29 - Control-Flow Analyses and Static Single Assignment form - Control Flow Analysis - 2

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

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- Lecture 30 - Control-Flow Analyses and Static Single Assignment form - Depth First Analysis of Flow Graphs
- Lecture 31 - Control-Flow Analyses and Static Single Assignment form - Dominators
- Lecture 32 - Control-Flow Analyses and Static Single Assignment form - Natural Loops (for Reducible Flow-Graphs)
- Lecture 33 - Control-Flow Analyses and Static Single Assignment form - The Static Single Assignment SSA Form
- Lecture 34 - Control-Flow Analyses and Static Single Assignment form - The Static Single Assignment SSA Form
- Lecture 35 - Polyhedral Compilation and Loop Optimizations - Polyhedral Compilation I Part 1
- Lecture 36 - Polyhedral Compilation and Loop Optimizations - Polyhedral Compilation I Part 2
- Lecture 37 - Polyhedral Compilation and Loop Optimizations - Polyhedral Compilation I - Part 3
- Lecture 38 - Polyhedral Compilation and Loop Optimizations - Polyhedral Compilation I - Part 4
- Lecture 39 - Polyhedral Compilation and Loop Optimizations - Polyhedral Compilation I - Part 5
- Lecture 40 - Polyhedral Compilation and Loop Optimizations - Polyhedral Compilation I - Part 6
- Lecture 41 - Polyhedral Compilation and Loop Optimizations - Polyhedral Compilation I - Part 7
- Lecture 42 - Polyhedral Compilation and Loop Optimizations - Affine Control Loops
- Lecture 43 - Polyhedral Compilation and Loop Optimizations - Simplifying Reductions Revised - 1
- Lecture 44 - Polyhedral Compilation and Loop Optimizations - Simplifying Reductions Revised - 2
- Lecture 45 - Polyhedral Compilation and Loop Optimizations - Simplifying Reductions Revised - 3
- Lecture 46 - Polyhedral Compilation and Loop Optimizations - Classical Optimization
- Lecture 47 - Polyhedral Compilation and Loop Optimizations - What is Program Analysis
- Lecture 48 - Polyhedral Compilation and Loop Optimizations - Live Variable Analysis - 1
- Lecture 49 - Polyhedral Compilation and Loop Optimizations - Live Variable Analysis - 2
- Lecture 50 - Polyhedral Compilation and Loop Optimizations - Available Expression Analysis
- Lecture 51 - Polyhedral Compilation and Loop Optimizations - Common Features of Bit Vector Frameworks
- Lecture 52 - Polyhedral Compilation and Loop Optimizations - The Birth of a Compiler - 1
- Lecture 53 - Polyhedral Compilation and Loop Optimizations - The Birth of a Compiler - 2
- Lecture 54 - Polyhedral Compilation and Loop Optimizations - The Structure of Modern Compiler Modern Challenges
- Lecture 55 - Polyhedral Compilation and Loop Optimizations - Conclusion

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

NPTEL Video Course - Special Lecture Series - ACM Summer School on Shape Modelling

Subject Co-ordinator - Aditya Tatu

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Linear Algebra and Optimization - 1  
Lecture 2 - Linear Algebra and Optimization - 2  
Lecture 3 - Linear Algebra and Optimization - 3  
Lecture 4 - Linear Algebra and Optimization - 4  
Lecture 5 - Curvature - Part 1  
Lecture 6 - Curvature - Part 2  
Lecture 7 - Curvature - Part 3  
Lecture 8 - Introduction To Parametric Curves and Surfaces - 1  
Lecture 9 - Introduction To Parametric Curves and Surfaces - 2  
Lecture 10 - Introduction To Parametric Curves and Surfaces - 3  
Lecture 11 - Introduction To Parametric Curves and Surfaces - 4  
Lecture 12 - Introduction To Parametric Curves and Surfaces - 5  
Lecture 13 - Introduction To Parametric Curves and Surfaces - 6  
Lecture 14 - Introduction To Parametric Curves and Surfaces - 7  
Lecture 15 - Introduction To Parametric Curves and Surfaces - 8  
Lecture 16 - Introduction To Parametric Curves and Surfaces - 9  
Lecture 17 - Implicit Surfaces - Part 1  
Lecture 18 - Implicit Surfaces - Part 2  
Lecture 19 - Implicit Surfaces - Part 3  
Lecture 20 - MeshLab - Part 1  
Lecture 21 - MeshLab - Part 2  
Lecture 22 - MeshLab - Part 3  
Lecture 23 - MeshLab - Part 4  
Lecture 24 - Discrete Surface - Part 1  
Lecture 25 - Discrete Surface - Part 2  
Lecture 26 - Discrete Surface - Part 3  
Lecture 27 - Discrete Surface - Part 4  
Lecture 28 - Discrete Surface - Part 5  
Lecture 29 - Laplace Beltrami on Manifolds and Meshes with Applications - Part 1

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- Lecture 30 - Laplace Beltrami on Manifolds and Meshes with Applications - Part 2
- Lecture 31 - Laplace Beltrami on Manifolds and Meshes with Applications - Part 3
- Lecture 32 - Laplace Beltrami on Manifolds and Meshes with Applications - Part 4
- Lecture 33 - Laplace Beltrami on Manifolds and Meshes with Applications - Part 5
- Lecture 34 - Laplace Beltrami on Manifolds and Meshes with Applications - Part 6
- Lecture 35 - Internal Digital R and I - Part 1
- Lecture 36 - Internal Digital R and I - Part 2
- Lecture 37 - Internal Digital R and I - Part 3
- Lecture 38 - Rigid and Non rigid Shape Matching - Part 1
- Lecture 39 - Rigid and Non rigid Shape Matching - Part 2
- Lecture 40 - Rigid and Non rigid Shape Matching - Part 3
- Lecture 41 - Rigid and Non rigid Shape Matching - Part 4
- Lecture 42 - Geometric Deep Learning - Part 1
- Lecture 43 - Geometric Deep Learning - Part 2
- Lecture 44 - Geometric Deep Learning - Part 3
- Lecture 45 - Geometric Deep Learning - Part 4
- Lecture 46 - Geometric Deep Learning - Part 5
- Lecture 47 - Geometric Deep Learning - Frame Works
- Lecture 48 - Geometric Deep Learning - Lab 1
- Lecture 49 - Geometric Deep Learning - Lab 2
- Lecture 50 - Geometric Deep Learning - Lab 3



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

NPTEL Video Course - Special Lecture Series - ACM India Summer School on Shape Modelling

Subject Co-ordinator - Multi-Faculty

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - ACM India Summer School on Shape Modelling - Introduction  
Lecture 2 - Linear Algebra and Optimization Refresher - 1  
Lecture 3 - Linear Algebra and Optimization Refresher - 2  
Lecture 4 - Linear Algebra and Optimization Refresher - 3  
Lecture 5 - Linear Algebra and Optimization Refresher - 4  
Lecture 6 - Overview of Python 3 + {Numpy, Scipy, Matplotlib} - Part 1  
Lecture 7 - Overview of Python 3 + {Numpy, Scipy, Matplotlib} - Part 2  
Lecture 8 - Curves and Surfaces - Part 1  
Lecture 9 - Curves and Surfaces - Part 2  
Lecture 10 - Curves and Surfaces - Part 3  
Lecture 11 - Curves and Surfaces - Part 4  
Lecture 12 - Curves and Surfaces - Part 5  
Lecture 13 - Curves and Surfaces - Part 6  
Lecture 14 - Curves and Surfaces - Part 7  
Lecture 15 - Algorithms in Computational Geometry - Part 1  
Lecture 16 - Algorithms in Computational Geometry - Part 2  
Lecture 17 - Algorithms in Computational Geometry - Part 3  
Lecture 18 - Algorithms in Computational Geometry - Part 4  
Lecture 19 - Algorithms in Computational Geometry - Part 5  
Lecture 20 - Algorithms in Computational Geometry Lab - Part 1  
Lecture 21 - Algorithms in Computational Geometry Lab - Part 2  
Lecture 22 - Algorithms in Computational Geometry Lab - Part 3  
Lecture 23 - Discrete Surfaces - Part 1  
Lecture 24 - Discrete Surfaces - Part 2  
Lecture 25 - Discrete Surfaces - Part 3  
Lecture 26 - Discrete Surfaces - Part 4  
Lecture 27 - Discrete Surfaces - Part 5  
Lecture 28 - Implicit and Discrete Surfaces  
Lecture 29 - Discrete Surfaces - Part Lab - Part 1

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Lecture 30 - Discrete Surfaces - Part Lab - Part 2  
Lecture 31 - Discrete Laplace Beltrami Operator - Part 1  
Lecture 32 - Discrete Laplace Beltrami Operator - Part 2  
Lecture 33 - Discrete Laplace Beltrami Operator - Part 3  
Lecture 34 - Discrete Laplace Beltrami Operator - Part 4  
Lecture 35 - Discrete Laplace Beltrami Operator - Part 5  
Lecture 36 - Discrete Laplace Beltrami Operator - Part 6  
Lecture 37 - Lab Libigl-Python-Blindings - Part 1  
Lecture 38 - Lab Libigl-Python-Blindings - Part 2  
Lecture 39 - Procrustes Shape Analysis - Part 1  
Lecture 40 - Procrustes Shape Analysis - Part 2  
Lecture 41 - Procrustes Shape Analysis - Part 3  
Lecture 42 - Procrustes Shape Analysis - Part 4  
Lecture 43 - Lab Procrustes Shape Analysis Template - Part 1  
Lecture 44 - Lab Procrustes Shape Analysis Template - Part 2  
Lecture 45 - Lab Procrustes Shape Analysis Template - Part 3  
Lecture 46 - Shape Deformation/Animation, Shape Matching - Part 1  
Lecture 47 - Shape Deformation/Animation, Shape Matching - Part 2  
Lecture 48 - Shape Deformation/Animation, Shape Matching - Part 3  
Lecture 49 - Shape Deformation/Animation, Shape Matching - Part 4  
Lecture 50 - Shape Deformation/Animation, Shape Matching - Part 5  
Lecture 51 - Geometric Deep Learning - Part 1  
Lecture 52 - Geometric Deep Learning - Part 2  
Lecture 53 - Geometric Deep Learning - Part 3  
Lecture 54 - Geometric Deep Learning - Part 4  
Lecture 55 - Geometric Deep Learning - Part 5  
Lecture 56 - Geometric Deep Learning - Part 6  
Lecture 57 - Topological Descriptors For Data and Shape Analysis - Part 1  
Lecture 58 - Topological Descriptors For Data and Shape Analysis - Part 2  
Lecture 59 - Topological Descriptors For Data and Shape Analysis - Part 3  
Lecture 60 - Topological Descriptors For Data and Shape Analysis - Part 4  
Lecture 61 - Panel Discussion On Shape Modelling In Academia and Industry - Part 1  
Lecture 62 - Panel Discussion On Shape Modelling In Academia and Industry - Part 2

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

NPTEL Video Course - Special Lecture Series - ACM India Winter School on Topics in Digital Trust

Subject Co-ordinator - Multi-Faculty

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - ACM Day 1 Session 1  
Lecture 2 - ACM Day 1 Session 2 - Part I  
Lecture 3 - ACM Day 1 Session 2 - Part II  
Lecture 4 - ACM Day 1 Session 3 - Part I  
Lecture 5 - ACM Day 1 Session 3 - Part II  
Lecture 6 - ACM Day 2 Session 1 - Part I  
Lecture 7 - ACM Day 2 Session 1 - Part II  
Lecture 8 - ACM Day 2 Session 2 - Part I  
Lecture 9 - ACM Day 2 Session 2 - Part II  
Lecture 10 - ACM Day 3 Session 1 - Part 1  
Lecture 11 - ACM Day 3 Session 1 - Part 2  
Lecture 12 - ACM Day 3 Session 2 - Part 1  
Lecture 13 - ACM Day 3 Session 2 - Part 2  
Lecture 14 - ACM Day 3 Session 3 - Part I  
Lecture 15 - ACM Day 3 Session 3 - Part II  
Lecture 16 - ACM Day 3 Session 4 - Part I  
Lecture 17 - ACM Day 3 Session 4 - Part II  
Lecture 18 - ACM Day 4 session 1 - Part I  
Lecture 19 - ACM Day 4 session 1 - Part II  
Lecture 20 - ACM Day 4 session 2 - Part I  
Lecture 21 - ACM Day 4 session 2 - Part II  
Lecture 22 - ACM Day 5 session 1 - Part 1  
Lecture 23 - ACM Day 5 session 1 - Part 2  
Lecture 24 - ACM Day 5 session 2 - Part 1  
Lecture 25 - ACM Day 5 session 2 - Part 2  
Lecture 26 - ACM Day 6 session 1 - Part 1  
Lecture 27 - ACM Day 6 session 1 - Part 2  
Lecture 28 - ACM Day 6 session 2 - Part 1  
Lecture 29 - ACM Day 6 session 2 - Part 2

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

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Lecture 30 - ACM Day 7 session 1 - Part I  
Lecture 31 - ACM Day 7 session 1 - Part II  
Lecture 32 - ACM Day 7 Session 2  
Lecture 33 - ACM Day 8 Session 1  
Lecture 34 - ACM Day 8 Session 2  
Lecture 35 - ACM Day 8 Session 3  
Lecture 36 - ACM Day 8 Session 4  
Lecture 37 - ACM Day 9 Session 1  
Lecture 38 - ACM Day 9 Session 2  
Lecture 39 - ACM Day 9 Session 3  
Lecture 40 - ACM Day 9 Session 4  
Lecture 41 - ACM Day 9 Session 5 - Part 1  
Lecture 42 - ACM Day 9 Session 5 - Part 2  
Lecture 43 - ACM Day 10 Session 1  
Lecture 44 - ACM Day 10 Session 2 - Part 1  
Lecture 45 - ACM Day 10 Session 2 - Part 2  
Lecture 46 - ACM Day 10 Session 3 - Part 1  
Lecture 47 - ACM Day 10 Session 3 - Part 2

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

NPTEL Video Course - Special Lecture Series - ACM Winter School on Design, Implementation and Verification of

Subject Co-ordinator - Multi-Faculty

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Mathematical Logic - Session 1  
Lecture 2 - Mathematical Logic - Session 2  
Lecture 3 - Industry Perspectives on Compiler Design  
Lecture 4 - Processor Datapath and Introduction to ILP Architecture - Session 1  
Lecture 5 - Processor Datapath and Introduction to ILP Architecture - Session 2  
Lecture 6 - Instruction Level Parallelism - Session 1  
Lecture 7 - Multithreading and Multicores  
Lecture 8 - Instruction Level Parallelism - Session 2  
Lecture 9 - DRAM Memory Organization  
Lecture 10 - Reactive Synthesis: A High-Level Introduction - Session 1  
Lecture 11 - Reactive Synthesis: A High-Level Introduction - Session 2  
Lecture 12 - Reactive Synthesis: A High-Level Introduction - Session 3  
Lecture 13 - Reactive Synthesis: A High-Level Introduction - Session 4  
Lecture 14 - Reduced Ordered Binary Decision Diagrams and And-Inverter Graphs - Session 1  
Lecture 15 - Reduced Ordered Binary Decision Diagrams and And-Inverter Graphs - Session 2  
Lecture 16 - Reduced Ordered Binary Decision Diagrams and And-Inverter Graphs - Session 3  
Lecture 17 - Runtime Environments - I  
Lecture 18 - Runtime Environments - II  
Lecture 19 - Hexagon DSPs in Snapdragon  
Lecture 20 - Types and Program Analysis  
Lecture 21 - Local and Global Optimizations  
Lecture 22 - Introduction to Data-Flow and Control-Flow Analyses  
Lecture 23 - Code Generation and Register Allocation  
Lecture 24 - The Static Single Assignment Form and Application to Program Optimizations  
Lecture 25 - Garbage Collection  
Lecture 26 - Program Testing and Verification - Session 1  
Lecture 27 - Program Testing and Verification - Session 2

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

NPTEL Video Course - Special Lecture Series - Topics In Theoretical Computer Science (2023)

Subject Co-ordinator - Prof. Prajakta Nimbhorkar

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - NP-Completeness

Lecture 2 - Hilbert's Tenth Problem

Lecture 3 - SAT Solvers

Lecture 4 - Polynomial Identity Testing

Lecture 5 - Finite Graphs for Infinite Functions

Lecture 6 - A Panorama of Computational Problems

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

NPTEL Video Course - Special Lecture Series - NPTEL Special Lectures Series

Subject Co-ordinator - Mr. Ravikrishnan .A, Srivastava, Raman .K

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Microbial Social Networks: From Deep Sea to Outer Space

Lecture 2 - Data-Driven Analysis to Improve Road Safety

Lecture 3 - The Power of Generative AI: AI that can see and talk

Lecture 4 - Astronomical Challenges in Atomic Scale chip Manufacturing

Lecture 5 - Evaluating Fault - Tolerant Schemes for noisy hardware

Lecture 6 - Tighter and Stronger Quantum Speed Limits for General Quantum States

Lecture 7 - Robust, bright photon sources for quantum communication and quantum sensing applications

Lecture 8 - Particle transport problems at different scales: From circulating fluidized beds to dry powder

Lecture 9 - Simulation and Data: 6 Steps from Theory to Impact through Disasters, Engineering and Heritage

Lecture 10 - The Attosecond Worldâ there's plenty of time at the bottom

Lecture 11 - Quantum diffusion during cosmic inflation

Lecture 12 - Squashed quantum non-Markovianity: a measure of genuine quantum non-Markovianity in states

Lecture 13 - Gravitational-Wave Astronomy: New discoveries, puzzles and prospects

Lecture 14 - Bounds on the Superconducting Transition Temperature

Lecture 15 - Probing the primordial universe with electromagnetic and gravitational waves

Lecture 16 - Elephants have a bigger brain than humans, so how come they don't study you

Lecture 17 - Investigating quantum speed limits with superconducting qubits

Lecture 18 - Orbital Angular Momentum Entanglement

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

NPTEL Video Course - Special Lecture Series - ACM India Summer School on IoT and Embedded Systems

Subject Co-ordinator - Prof. Meenakshi DSouza

Co-ordinating Institute - IISc - Bangalore

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

Lecture 1 - ACM India Summer School on IoT and Embedded Systems - Introduction

Lecture 2 - Embedded Sysyem: An Introduction

Lecture 3 - Introduction to Embedded Sysyems

Lecture 4 - Introduction to IoT

Lecture 5 - AWS IoT: Tutorial and demonstration

Lecture 6 - IoT: Components, operating systems and protocols

Lecture 7 - Arduino programming

Lecture 8 - Arduino programming: Tutorial

Lecture 9 - IoT Applications

Lecture 10 - IoT Applications: Tutorial and demonstration - 1

Lecture 11 - IoT Applications: Tutorial and demonstration - 2

Lecture 12 - Cloud, edge and fog computing for IoT - Part I

Lecture 13 - Cloud, edge and fog computing for IoT - Part II

Lecture 14 - IoT Communication



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

NPTEL Video Course - Special Lecture Series - ACM India Summer School on Algorithms for Data Science (2023)

Subject Co-ordinator - Multi-Faculty

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction - ACM India Summer School on Algorithms for Data Science

Lecture 2 - Introduction to Probability

Lecture 3 - Selection Problems

Lecture 4 - Median from Read-Only Memory

Lecture 5 - Majority and Heavy Hitters

Lecture 6 - Introduction to ProbabilityTail inequalities

Lecture 7 - Chernoff Bounds

Lecture 8 - Quickselect and Quicksort

Lecture 9 - Introduction to Randomized Algorithms: Graph Minimum Cut

Lecture 10 - Introduction to Streaming Algorithm and Reservoir Sampling

Lecture 11 - Approximate Counting in Streaming: MORRIS Counter

Lecture 12 - Median of Means Technique Applied to Approximate Counting

Lecture 13 - Counting Distinct Elements in Streaming

Lecture 14 - 2-Universal Hashing and Applications for Derandomizing

Lecture 15 - Approximate Heavy Hitters

Lecture 16 - Frequency Moments

Lecture 17 - Graph Streaming Algorithms

Lecture 18 - Locality Sensitive Hashing - Part 1

Lecture 19 - Locality Sensitive Hashing - Part 2

Lecture 20 - Locality Sensitive Hashing - Part 3

Lecture 21 - Graph Streaming Lower Bounds

Lecture 22 - Bloom Filters

Lecture 23 - Frequent Pattern Mining - Part 1

Lecture 24 - Frequent Pattern Mining - Part 2

Lecture 25 - Is AI ready for The real world?

Lecture 26 - Online Learning and Multiarmed Bandits - Part 1

Lecture 27 - Online Learning and Multiarmed Bandits - Part 2

Lecture 28 - Reinforcement Learning - Part 1

Lecture 29 - Reinforcement Learning - Part 2

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

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- Lecture 30 - Singular Value Decomposition - Part 1
- Lecture 31 - Singular Value Decomposition - Part 2
- Lecture 32 - Graph Centralities
- Lecture 33 - Johnson Lindenstrauss Lemma
- Lecture 34 - Graph Centralities Clustering and Partition

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

NPTEL Video Course - Special Lecture Series - ACM India Summer School on Cybersecurity for Women

Subject Co-ordinator - Multi-Faculty

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Mathematical Foundation for Cryptography - Part 1  
Lecture 2 - Mathematical Foundation for Cryptography - Part 2  
Lecture 3 - Modern Cryptography  
Lecture 4 - Modern Cryptography  
Lecture 5 - Modern Cryptography - Asymmetric Cryptography  
Lecture 6 - Network Security protocols and mechanisms - Part 1  
Lecture 7 - Network Security protocols and mechanisms - Part 2  
Lecture 8 - IOT Security Protocols - Part 1  
Lecture 9 - IOT Security Protocols - Part 2  
Lecture 10 - Introduction to Ethical Hacking - Part 1  
Lecture 11 - Introduction to Ethical Hacking - Part 2  
Lecture 12 - DevSecOps Embedding Security into DevOps - Part 1  
Lecture 13 - Web App Security  
Lecture 14 - Navigating the privacy landscape  
Lecture 15 - Hardware security  
Lecture 16 - Introduction to Blockchain  
Lecture 17 - Social Engineering and OSINT - Part 1  
Lecture 18 - Social Engineering and OSINT - Part 2  
Lecture 19 - Cloud Security and Secure Coding Practices - Part 1  
Lecture 20 - Cloud Security and Secure Coding Practices - Part 2  
Lecture 21 - Career Opportunities, Challenges and Support  
Lecture 22 - Quantum Cryptography - Part 1  
Lecture 23 - Quantum Cryptography - Part 2  
Lecture 24 - AI in cybersecurity

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

NPTEL Video Course - Special Lecture Series - ACM Winter Schools - Cryptography and Cybersecurity

Subject Co-ordinator - Dr. Aswani Kumar

Co-ordinating Institute - IISc - Bangalore

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

Lecture 1 - Introduction to Cryptography  
Lecture 2 - Classical Ciphers - Part 1  
Lecture 3 - Classical Ciphers - Part 2  
Lecture 4 - Foundations of Cryptography - Part 1  
Lecture 5 - Foundations of Cryptography - Part 2  
Lecture 6 - Foundations of Cryptography - Part 3  
Lecture 7 - Block and Stream ciphers, Fiestel Networks  
Lecture 8 - Data Encryption Standard  
Lecture 9 - Cybersecurity - Part 1  
Lecture 10 - Cybersecurity - Part 2  
Lecture 11 - Enterprise Security - Part 1  
Lecture 12 - Enterprise Security - Part 2  
Lecture 13 - Advanced Encryption Standard  
Lecture 14 - Information Gathering and Social Engineering  
Lecture 15 - Cybersecurity : A Practical Approach - Part 1  
Lecture 16 - Cybersecurity : A Practical Approach - Part 2  
Lecture 17 - Cybersecurity : A Practical Approach - Part 3  
Lecture 18 - Cybersecurity : A Practical Approach - Part 4  
Lecture 19 - Cybersecurity : A Practical Approach - Part 5  
Lecture 20 - Public Key Cryptography  
Lecture 21 - Network Security - Firewalls, ACL, NAT, AAA, FTD - Part 1  
Lecture 22 - Network Security - Firewalls, ACL, NAT, AAA, FTD - Part 2  
Lecture 23 - Network Security - VPN, PKI, Certificates, SSL,SAML - Part 1  
Lecture 24 - Network Security - VPN, PKI, Certificates, SSL,SAML - Part 2  
Lecture 25 - Virtual Private Networks (VPN)  
Lecture 26 - Hash Functions, Digital Signatures and Quantum Cryptography  
Lecture 27 - Packets, Protocols and Attacks in Cyberspace - Part 1  
Lecture 28 - Packets, Protocols and Attacks in Cyberspace - Part 2

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

NPTEL Video Course - Special Lecture Series - ACM Winter School on Network Science

Subject Co-ordinator - Prof. Loyimee Gogoi

Co-ordinating Institute - Ahmedabad University

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

Lecture 1 - Representing Networks  
Lecture 2 - Strategic Network Formation - Session 1  
Lecture 3 - Strategic Network Formation - Session 2  
Lecture 4 - Strategic Network Formation - Session 3  
Lecture 5 - Strategic Network Formation - Session 4  
Lecture 6 - Network Visualization - Session 1  
Lecture 7 - Network Visualization - Session 2  
Lecture 8 - Social Network Analysis  
Lecture 9 - Neural Networks - Basics  
Lecture 10 - Network Analysis in Telecom  
Lecture 11 - Strong and Weak Ties  
Lecture 12 - Link Analysis  
Lecture 13 - Statistical Mechanics of Complex Networks - Session 1  
Lecture 14 - Statistical Mechanics of Complex Networks - Session 2  
Lecture 15 - Statistical Mechanics of Complex Networks - Session 3  
Lecture 16 - Statistical Mechanics of Complex Networks - Session 4  
Lecture 17 - Hate Speech - Session 1  
Lecture 18 - Hate Speech - Session 2  
Lecture 19 - Dynamics on Networks - Session 1  
Lecture 20 - Dynamics on Networks - Session 2  
Lecture 21 - Dynamics on Networks - Session 3  
Lecture 22 - Dynamics on Networks - Session 4  
Lecture 23 - Causal Discovery and Network Science  
Lecture 24 - Games and Networks - Session 1  
Lecture 25 - Games and Networks - Session 2

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

NPTEL Video Course - Special Lecture Series - ACM Winter School on Recent Trends in AI and ML

Subject Co-ordinator - Dr. Chandranath Adak

Co-ordinating Institute - IIT - Patna

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

Lecture 1 - NLP Foundation - Part I  
Lecture 2 - NLP Foundation - Part II  
Lecture 3 - Fundamentals of Machine Learning - Part I  
Lecture 4 - Fundamentals of Machine Learning - Part II  
Lecture 5 - Artificial Intelligence - An Introduction  
Lecture 6 - Logistic Regression and Neural Networks  
Lecture 7 - Large Scale SVM Algorithms and Applications  
Lecture 8 - Ensemble Deep Learning For Alzheimer's Disease Dianosis  
Lecture 9 - From Smart Sensing to Smart Living - The Era of IoT, AI:ML and Data Science  
Lecture 10 - Machine Learning - Naive Bayes Classification  
Lecture 11 - Cluster Analysis - Basic Concepts and Algorithms  
Lecture 12 - Algorithms of Unsupervised Learning  
Lecture 13 - Backbone functions of Deep Neural Networks Activation, Loss, Optimization functions  
Lecture 14 - Convolutional Neural Networks  
Lecture 15 - Reinforcement Learning - Experience, Adapt, Excel - Part I  
Lecture 16 - Neoteric Frontiers in cloud, edge and Quantum Computing for Bigdata, IoT and AI Applications  
Lecture 17 - Reinforcement Learning - Experience, Adapt, Excel - Part II  
Lecture 18 - Economic Impact of New Category Recommendation Evidence from a Randomized Field Experiment  
Lecture 19 - Neural Text Generation  
Lecture 20 - RL Algorithms  
Lecture 21 - An Overview of AI, NLP, ML Research Activities  
Lecture 22 - LLMs and Ethics  
Lecture 23 - Reinforcement Learning with Human Feedback  
Lecture 24 - The LLM Journey  
Lecture 25 - Representation Learning for Large Scale Pretrained Models  
Lecture 26 - Computer Vision Application

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

NPTEL Video Course - Special Lecture Series - ACM India Pingala Interactions in Computing (PIC) 2024

Subject Co-ordinator - Multi-Faculty

Co-ordinating Institute - IISc - Bangalore

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

Lecture 1 - PIC 2024 Inauguration  
Lecture 2 - Exciting Trends in Machine Learning  
Lecture 3 - Towards Inclusive and Responsible Language Technologies  
Lecture 4 - Chat with Jeffrey Dean and Partha Talukdar  
Lecture 5 - Indo-International Collaboration Case Studies - 1  
Lecture 6 - Indo-International Collaboration Case Studies - 2  
Lecture 7 - Indo-International Collaboration Case Studies - 3  
Lecture 8 - Connectivity is the Thing  
Lecture 9 - Chat with Robert Metcalfe  
Lecture 10 - Bad Algorithms  
Lecture 11 - Chat with Saket Saurabh  
Lecture 12 - Converting Research to Business  
Lecture 13 - Robust Query Processing: Where Geometry Beats ML !  
Lecture 14 - Data, More Data, Too Much Data  
Lecture 15 - Chat with Jayant Haritsa and Tova Milo  
Lecture 16 - Efficient Verification of Computation on Untrusted Platforms  
Lecture 17 - Cryptography: the Art of Paradox  
Lecture 18 - Chat with Shweta Agrawal and Yael Kalai  
Lecture 19 - ACM: Goals, Priorities, Initiatives  
Lecture 20 - Valedictory Function

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

NPTEL Video Course - Special Lecture Series - ACM INDIA ARCS 2024

Subject Co-ordinator - Multi-Faculty

Co-ordinating Institute - IISc - Bangalore

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

Lecture 1 - Welcome and Opening Remarks

Lecture 2 - Keynote 1

Lecture 3 - Lightning Talks - Part 1

Lecture 4 - Academia Industry Career Opportunities - Sitare-University

Lecture 5 - Academia Industry Career Opportunities - Flame University

Lecture 6 - Academia Industry Career Opportunities - Processor Research Labs

Lecture 7 - ACMI-W Panel Discussion

Lecture 8 - ACMI-W OCCW-Award

Lecture 9 - ACM-India Activities for PhD-Students

Lecture 10 - Keynote 2

Lecture 11 - Lightning Talks - Part 2

Lecture 12 - ECR Award Talk - Siddharth Barman

Lecture 13 - Doctoral Dissertation Award Talks 1

Lecture 14 - Doctoral Dissertation Award Talks 2

Lecture 15 - ECR Talk 1 - Manas-Thakur

Lecture 16 - ECR Talk 2 - Deeksha-Bhartiya

Lecture 17 - ECR Talk 3 - Shikhar-Patranabais



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

NPTEL Video Course - Special Lecture Series - ACM INDIA Annual Event 2024

Subject Co-ordinator - Meenakshi D'Souza, Hirendra Nath Ghosh

Co-ordinating Institute - IISc - Bangalore

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

Lecture 1 - Inauguration - Meenakshi D'Souza, Hirendra Nath Ghosh

Lecture 2 - ACM: Goals, Priorities, Initiatives - Yannis Ioannidis

Lecture 3 - ACM India at a Glance - Venkatesh Raman

Lecture 4 - Fireside Chat with Robert Metcalfe - Robert Metcalfe, Pravin Bhagwat

Lecture 5 - Human Factors of Formal Methods - Shriram Krishnamurthi

Lecture 6 - ACM India Awards Ceremony 1 - Hemant Pande

Lecture 7 - ACM India Awards Ceremony 2 - Hemant Pande

Lecture 8 - Efficient Verification of Computation on Untrusted Platforms - Yael Kalai

Lecture 9 - The Story of 14Trees - Pravin Bhagwat

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

NPTEL Video Course - Special Lecture Series - ACM INDIA Winter School - Full-Stack Networking (FSN)

Subject Co-ordinator - Multi-Faculty

Co-ordinating Institute - IISc - Bangalore

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

Lecture 1 - Introduction to Full-Stack Networking School  
Lecture 2 - Linux Networking Stack, Evolution of NICs, Evolution of Network packet processors  
Lecture 3 - Demo Session 1: Hands on with basic Linux networking commands  
Lecture 4 - Demo Session 2: Netfilter and iptables  
Lecture 5 - Intro to virtualization containers  
Lecture 6 - Demo session 1: Hands on with Docker  
Lecture 7 - Demo session 1: Hands on with Containers  
Lecture 8 - Demo session 1: Hands on with Kubernetes  
Lecture 9 - Container Networking : CNI service mesh, L7 Proxies, Overlay networks  
Lecture 10 - Container Networking : AWS, VPC, NAT, gateways  
Lecture 11 - Demo Session 1  
Lecture 12 - Multicloud  
Lecture 13 - Invited talk- Research Career  
Lecture 14 - eBPF  
Lecture 15 - eBPF for Networking  
Lecture 16 - Invited talks: Application Connectivity for the Multi-Cloud Era  
Lecture 17 - Application layer networking  
Lecture 18 - Invited talk: Performance Measurement and Optimization  
Lecture 19 - Invited talk: Chaos Engineering  
Lecture 20 - Websockets  
Lecture 21 - RPC: Remote Procedure Calls  
Lecture 22 - Invited talk: TiHAN Edge cloud testbed with WiFi/5G  
Lecture 23 - Demo Session: Application Layer Networking  
Lecture 24 - Message Queues  
Lecture 25 - Invited talks: Towards Expressive and Performant Service Meshes  
Lecture 26 - Advanced HTTP  
Lecture 27 - WiFi Tuned  
Lecture 28 - Multipath Networking  
Lecture 29 - Demo Session - Multipath networking

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