NPTEL Video Course - Computer Science and Engineering - Numerical Optimization

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Co-ordinating Institute - IISc - Bangalore

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

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Lecture 2 - Mathematical Background
Lecture 3 - Mathematical Background (Continued...)
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Lecture 5 - One Dimensional Optimization (Continued...)
Lecture 6 - Convex Sets
Lecture 7 - Convex Sets (Continued...)
Lecture 8 - Convex Functions
Lecture 9 - Convex Functions (Continued...)
Lecture 10 - Multi Dimensional Optimization - Optimality Conditions, Conceptual Algorithm
Lecture 11 - Line Search Techniques
Lecture 12 - Global Convergence Theorem
Lecture 13 - Steepest Descent Method
Lecture 14 - Classical Newton Method
Lecture 15 - Trust Region and Quasi-Newton Methods
Lecture 16 - Quasi-Newton Methods - Rank One Correction, DFP Method
Lecture 17 - i) Quasi-Newton Methods - Broyden Family ii) Coordinate Descent Method
Lecture 18 - Conjugate Directions
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Lecture 20 - Constrained Optimization - Local and Global Solutions, Conceptual Algorithm
Lecture 21 - Feasible and Descent Directions
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Lecture 25 - Second Order KKT Conditions
Lecture 26 - Second Order KKT Conditions (Continued...)
Lecture 27 - Weak and Strong Duality
Lecture 28 - Geometric Interpretation
Lecture 29 - Lagrangian Saddle Point and Wolfe Dual

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Lecture 30 - Linear Programming Problem
Lecture 31 - Geometric Solution
Lecture 32 - Basic Feasible Solution
Lecture 33 - Optimality Conditions and Simplex Tableau
Lecture 34 - Simplex Algorithm and Two-Phase Method
Lecture 35 - Duality in Linear Programming
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Lecture 39 - Active Set Method (Continued...)
Lecture 40 - Barrier and Penalty Methods, Augmented Lagrangian Method and Cutting Plane Method
Lecture 41 - Summary
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