NPTEL Video Course - Mathematics - NOC:Computational Mathematics with SageMath

Subject Co-ordinator - Prof. Ajit Kumar

Co-ordinating Institute - Institute of Chemical Technology - Mumbai

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

Lecture 30 - Constrained optimization using Lagrange multipliers
Lecture 31 - Working with vectors in SageMath
Lecture 32 - Solving system of linear Equations in SageMath
Lecture 33 - Vector Spaces in SageMath
Lecture 34 - Basis and dimensions of vector spaces in SageMath
Lecture 35 - Matrix Spaces with SageMath
Lecture 36 - Linear Transformations - Part 1 with SageMath
Lecture 37 - Linear Transformations - Part 2 with SageMath
Lecture 38 - Eigenvalues and Eigenvectors - Part 1 with SageMath
Lecture 39 - Eigenvalues and Eigenvectors - Part 2 with SageMath
Lecture 40 - Inner Product - Part 1 with SageMath
Lecture 41 - Inner Product - Part 2 with SageMath
Lecture 42 - Orthogonal Decomposition with SageMath
Lecture 43 - Least Square Solution with SageMath
Lecture 44 - Singular Value Decomposition (SVD) with SageMath
Lecture 45 - Application of SVD to image processing
Lecture 46 - Solving System of linear ODE using Eigenvalues and Eigenvectors
Lecture 47 - Google Page Rank Algorithm using SageMath
Lecture 48 - Finding Roots of algebraic and transcendental equations in SageMath
Lecture 49 - Numerical Solutions of System of linear equations in SageMath
Lecture 50 - Interpolations in SageMath
Lecture 51 - Numerical Integration in SageMath
Lecture 52 - Numerical Eigenvalues
Lecture 53 - Solving 1st and 2nd order ODE with SageMath
Lecture 54 - Euler's Method to solve 1st order ODE with SageMath
Lecture 55 - Fourth Order Runge-Kutta Method
Lecture 56 - RK4 method for System of ODE and Applications
Lecture 57 - Solving ODE using Laplace Transforms in SageMath
Lecture 58 - Introduction to Linear Programming Problems (LPP)
Lecture 59 - Solving Linear Programming Problmes using Graphical Methods
Lecture 60 - Basics Definitions and Results in LPP
Lecture 61 - Theory of Simplex Method
Lecture 62 - Simplex Methods in SageMath - Part 1
Lecture 63 - Simplex Methods in SageMath - Part 2
Lecture 64 - Simplex Methods in Matrix Form
Lecture 65 - Revised Simplex Method in SageMath
Lecture 66 - Two Phase Simplex Method in SageMath
Lecture 67 - Big-M Method in SageMath
Lecture 68 - Duality of Linear Program

Lecture 69 - Dual Simplex Method in SageMath
Lecture 70 - Review and What next in SageMath?