NPTEL Video Course - Electrical Engineering - NOC:Real-Time Digital Signal Processing

Subject Co-ordinator - Prof. Rathna G N

Co-ordinating Institute - IISc - Bangalore

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

Lecture 1 - Introduction
Lecture 2 - Basics of Signal Processing
Lecture 3 - Lab - CCS
Lecture 4 - Number System
Lecture 5 - Architecture - 1
Lecture 6 - Architecture - 2
Lecture 7 - Real-time Constraints
Lecture 8 - FIR - Filters
Lecture 9 - Pipelining and Parallel Processing for Low Power Applications - I
Lecture 10 - Pipelining and Parallel Processing for Low Power Applications - II
Lecture 11 - Lab: Sine Generation
Lecture 12 - IIR Filters - 1
Lecture 13 - IIR Filters - 2
Lecture 14 - Lab: Sine Generatioon, FIR and IIR
Lecture 15 - Lab 3 IIR Filter as Resonator
Lecture 16 - Lab 4 Use of FDA tool box to generate co-efficients
Lecture 17 - Lab: Real-Time Audio Output through Sine Generation
Lecture 18 - IIR Filters 4
Lecture 19 - Lab: FIR Filter in generation of music
Lecture 20 - Lab: Real-Time Audio Output through FIR Filter
Lecture 21 - DFT, DTFT, twiddle factors, properties, circular convolution and examples
Lecture 22 - Complexity of Filtering and the FFT
Lecture 23 - Lab: Filtering Using FFT
Lecture 24 - Lab: FFT in CCS
Lecture 25 - FFT - 1
Lecture 26 - FFT - 2
Lecture 27 - FFT - 3
Lecture 28 - Overlap - Add
Lecture 29 - Overlap Save Method

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Lecture 30 - Lab: Overlap Add and Save Method using MATLAB
Lecture 31 - Correlation
Lecture 32 - Lab: Different ways of implementing FFT in CCS
Lecture 33 - Adaptive Filter
Lecture 34 - Lab: LMS Algorith in MATLAB
Lecture 35 - LMS Algorithm
Lecture 36 - Lab: Error surface and error contour
Lecture 37 - Adaptive Filter Applications
Lecture 38 - Lab: Application of adaptive filter in MATLAB
Lecture 39 - Adaptive Echo Cancellation
Lecture 40 - Lab: Application of adaptive filter in CCS, Echo, scrambling and graphic equilizer in MATLAB
Lecture 41 - Graphic Equalizer
Lecture 42 - Lab: Adaptive filters (MATLAB)
Lecture 43 - Speech Coding - I
Lecture 44 - Speech Coding - II
Lecture 45 - Speech Coding - III
Lecture 46 - Lab: LPC for speech synthesis
Lecture 47 - Discrete Cosine Transform - 1
Lecture 48 - Discrete Cosine Transform - 2
Lecture 49 - Discrete Cosine Transform - 3
Lecture 50 - Discrete Cosine Transform - 4
Lecture 51 - Lab: Adaptive filters (CCS) - 1
Lecture 52 - Lab: Adaptive filters (CCS) - 2
Lecture 53 - Lab: Discrete Cosine Transformation
Lecture 54 - Lab: Echogeneration
Lecture 55 - Lab: Using JiDSP
Lecture 56 - Summary
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