NPTEL Video Course - Electrical Engineering - NOC:Digital Signal Processing and its Applications

Subject Co-ordinator - Prof. V. M. Gadre

Co-ordinating Institute - IIT - Bombay

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

Lecture 30 - Definitions of sequences and Properties of DTFT
Lecture 31 - Introduction to DTFT, IDTFT
Lecture 32 - Dual to convolution property
Lecture 33 - Multiplication Property, Introduction to Parsevalâ s theorem
Lecture 34 - Introduction and Property of DTFT
Lecture 35 - Review of Inverse DTFT
Lecture 36 - Parsevalâ s Theorem and energy and time spectral density
Lecture 37 - Discussion on Unit Step
Lecture 38 - Introduction to Z transform
Lecture 39 - Example of Z transform
Lecture 40 - Region of Convergence
Lecture 41 - Properties of Z transform
Lecture 42 - Z- Transform
Lecture 43 - Rational System
Lecture 44 - Introduction and Examples of Rational Z Transform and their Inverses
Lecture 45 - Double Pole Examples and their Inverse Z Transform
Lecture 46 - Partial Fraction Decomposition
Lecture 47 - LSI System Examples
Lecture 48 - Why are Rational Systems so important?
Lecture 49 - Solving Linear constant coefficient difference equations which are valid over a finite range of
Lecture 50 - Introduction to Resonance in Rational Systems
Lecture 51 - Characterization of Rational LSI system
Lecture 52 - Causality and stability of the ROC of the system function
Lecture 53 - Recap of Rational Systems and Discrete Time Filters
Lecture 54 - Specifications for Filter Design
Lecture 55 - Four Ideal Piecewise Constant Filters
Lecture 56 - Important Characteristics Of Ideal Filters
Lecture 57 - Synthesis of Discrete Time Filters, Realizable specifications
Lecture 58 - Realistic Specifications for low pass filter. Filter Design Process
Lecture 59 - Introduction to Filter Design. Analog IIR Filter,FIR discrete-time filter, IIR discrete-time fil
Lecture 60 - Analog to discrete transform
Lecture 61 - Intuitive transforms, Bilinear Transformation
Lecture 62 - Steps for IIR filter design
Lecture 63 - Analog filter design using Butterworth Approximation
Lecture 64 - Butterworth filter Derivation And Analysis of butterworth system function
Lecture 65 - Chebychev filter Derivation
Lecture 66 - Midsem paper review discussion
Lecture 67 - The Chebyschev Approximation
Lecture 68 - Next step in design: Obtain poles

Lecture 69 - Introduction to Frequency Transformations in the Analog Domain
Lecture 70 - High pass transformation
Lecture 71 - Band pass transformation
Lecture 72 - Frequency Transformation
Lecture 73 - Different types of filters
Lecture 74 - Impulse invariant method and ideal impulse response
Lecture 75 - Design of FIR of length (2N+1) by the truncation method,Plotting the function V(w)
Lecture 76 - IIR filter using rectangular window, IIR filter using triangular window
Lecture 77 - Proof that frequency response of an fir filter using rectangular window function centred at 0 is
Lecture 78 - Introduction to window functions
Lecture 79 - Examples of window functions
Lecture 80 - Explanation of Gibbâ s Phenomenon and itâ s application
Lecture 81 - Comparison of FIR And IIR Filterâ s
Lecture 82 - Comparison of FIR And IIR Filterâ s
Lecture 83 - Comparison of FIR And IIR Filterâ s
Lecture 84 - Introduction and approach to realization (causal rational system)
Lecture 85 - Comprehension of Signal Flow Graphs and Achievement of Pseudo Assembly Language Code
Lecture 86 - Introduction to IIR Filter Realization and Cascade Structure
Lecture 87 - Cascade Parallel Structure
Lecture 88 - Lattice Structure
Lecture 89 - Recap And Review of Lattice Structure, Realization of FIR Function
Lecture 90 - Backward recursion, Change in the recursive equation of lattice
Lecture 91 - Lattice structure for an arbitrary rational system
Lecture 92 - Example realization of lattice structure for rational system
Lecture 93 - Introductory Remarks of Discrete Fourier Transform and Frequency Domain Sampling
Lecture 94 - Principle of Duality, The Circular Convolution