NPTEL Video Course - Electronics and Communication Engineering - NOC:Basic Electrical Circuits

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Co-ordinating Institute - IIT - Madras

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

Lecture 30 - Power and energy in a resistor
Lecture 31 - Power and energy in a capacitor
Lecture 32 - Power and energy in an inductor
Lecture 33 - Power and energy in a voltage source
Lecture 34 - Power and energy in a current source
Lecture 35 - Goals of circuit analysis
Lecture 36 - Number of independent KCL equations
Lecture 37 - Number of independent KVL equations and branch relationships
Lecture 38 - Analysis of circuits with a single independent source
Lecture 39 - Analysis of circuits with multiple independent sources using superposition
Lecture 40 - Superposition
Lecture 41 - Solution to the assignment on units 5 and 6
Lecture 42 - What is nodal analysis
Lecture 43 - Setting up nodal analysis equations
Lecture 44 - Structure of the conductance matrix
Lecture 45 - How elements appear in the nodal analysis formulation
Lecture 46 - Completely solving the circuit starting from nodal analysis
Lecture 47 - Nodal analysis example
Lecture 48 - Matrix inversion basics
Lecture 49 - Nodal analysis with independent voltage sources
Lecture 50 - Supernode for nodal analysis with independent voltage sources
Lecture 51 - Nodal analysis with VCCS
Lecture 52 - Nodal analysis with VCVS
Lecture 53 - Nodal analysis with CCVS
Lecture 54 - Nodal analysis with CCCS
Lecture 55 - Nodal analysis summary
Lecture 56 - Solution to the assignment on units 7 and 8
Lecture 57 - Planar circuits
Lecture 58 - Mesh currents and their relationship to branch currents
Lecture 59 - Mesh analysis
Lecture 60 - Mesh analysis with independent current sources-Supermesh
Lecture 61 - Mesh analysis with current controlled voltage sources
Lecture 62 - Mesh analysis with current controlled current sources
Lecture 63 - Mesh analysis using voltage controlled sources
Lecture 64 - Nodal analysis versus Mesh analysis
Lecture 65 - Superposition theorem
Lecture 66 - Pushing a voltage source through a node
Lecture 67 - Splitting a current source
Lecture 68 - Substitution theorem

Lecture 69 - Substitution theorem
Lecture 70 - Substituting a voltage or current source with a resistor
Lecture 71 - Solutions
Lecture 72 - Extensions to Superposition and Substitution theorem
Lecture 73 - Thevenin's theorem
Lecture 74 - Worked out example
Lecture 75 - Norton's theorem
Lecture 76 - Worked out example
Lecture 77 - Maximum power transfer theorem
Lecture 78 - Preliminaries.
Lecture 79 - Two port parameters
Lecture 80 - y parameters
Lecture 81 - y parameters
Lecture 82 - Solutions.
Lecture 83 - z parameters
Lecture 84 - z parameters
Lecture 85 - h parameters
Lecture 86 - h parameters
Lecture 87 - g parameters
Lecture 88 - g parameters
Lecture 89 - Calculations with a two-port element
Lecture 90 - Calculations with a two-port element.
Lecture 91 - Degenerate cases
Lecture 92 - Relationships between different two-port parameters
Lecture 93 - Equivalent circuit representation for two ports
Lecture 94 - Reciprocity
Lecture 95 - Proof of reciprocity of resistive two-ports
Lecture 96 - Proof for 4-terminal two-ports
Lecture 97 - Reciprocity in terms of different two-port parameters
Lecture 98 - Reciprocity in circuits containing controlled sources
Lecture 99 - Examples
Lecture 100 - Solutions..
Lecture 101 - Feedback amplifier using an opamp
Lecture 102 - Ideal opamp
Lecture 103 - Negative feedback around the opamp
Lecture 104 - Finding opamp signs for negative feedback
Lecture 105 - Example
Lecture 106 - Analysis of circuits with opamps
Lecture 107 - Inverting amplifier

Lecture 108 - Summing amplifier
Lecture 109 - Instrumentation amplifier
Lecture 110 - Negative resistance and Miller effect
Lecture 111 - Finding opamp signs for negative feedback-circuits with multiple opamps
Lecture 112 - Opamp supply voltages and saturation
Lecture 113 - KCL with an opamp and supply currents
Lecture 114 - Solutions...
Lecture 115 - Circuits with storage elements (capacitors and inductors)
Lecture 116 - First order circuit with zero input-natural response
Lecture 117 - First order RC circuit with zero input-Example
Lecture 118 - First order circuit with a constant input
Lecture 119 - General form of the first order circuit response
Lecture 120 - First order RC circuit with a constant input-Example
Lecture 121 - First order circuit with piecewise constant input
Lecture 122 - First order circuit with piecewise constant input-Example
Lecture 123 - First order circuit-Response of arbitrary circuit variables
Lecture 124 - Summary
Lecture 125 - Does a capacitor block DC?
Lecture 126 - Finding the order of a circuit
Lecture 127 - First order RC circuits with discontinuous capacitor voltages
Lecture 128 - Summary
Lecture 129 - First order RL circuits
Lecture 130 - First order RL circuit with discontinuous inductor current-Example
Lecture 131 - First order RC circuit with an exponential input
Lecture 132 - First order RC response to its own natural response
Lecture 133 - First order RC response to a sinusoidal input
Lecture 134 - First order RC response to a sinusoidal input-via the complex exponential
Lecture 135 - Summary
Lecture 136 - Three methods of calculating the sinusoidal steady state response
Lecture 137 - Calculating the total response including initial conditions
Lecture 138 - Why are sinusoids used in measurement?
Lecture 139 - Second order system natural response
Lecture 140 - Second order system as a cascade of two first order systems
Lecture 141 - Second order system natural response-critically damped and underdamped
Lecture 142 - Generalized form of a second order system
Lecture 143 - Numerical example
Lecture 144 - Series and parallel RLC circuits
Lecture 145 - Forced response of a second order system
Lecture 146 - Steady state response calculation and Phasors

Lecture 147 - Phasors (Continued...)
Lecture 148 - Magnitude and Phase plots
Lecture 149 - Magnitude and phase plotes of a second order system
Lecture 150 - Maximum power transfer and Conjugate matching