

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Analog Circuits

Subject Co-ordinator - Dr. Nagendra Krishnapura

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Introduction to the course
- Lecture 2 - Obtaining power gain
- Lecture 3 - Obtaining power gain using a linear two port?
- Lecture 4 - One port (two terminal) nonlinear element
- Lecture 5 - Nonlinear circuit analysis
- Lecture 6 - Small signal incremental analysis - graphical view
- Lecture 7 - Small signal incremental analysis
- Lecture 8 - Incremental equivalent circuit
- Lecture 9 - Large signal characteristics of a diode
- Lecture 10 - Analysis of diode circuits
- Lecture 11 - Small signal model of a diode
- Lecture 12 - Two port nonlinearity
- Lecture 13 - Small signal equivalent of a two port network
- Lecture 14 - Small signal equivalent circuit of a two port network
- Lecture 15 - Gain of a two port network
- Lecture 16 - Constraints on small signal parameters to maximize the gain
- Lecture 17 - Constraints on large signal characteristics to maximize the gain
- Lecture 18 - Implications of constraints in terms of the circuit equivalent
- Lecture 19 - MOS transistor-description
- Lecture 20 - MOS transistor large signal characteristics
- Lecture 21 - MOS transistor large signal characteristics - graphical view
- Lecture 22 - MOS transistor small signal characteristics
- Lecture 23 - Linear (Triode) region of the MOS transistor
- Lecture 24 - Small signal amplifier using the MOS transistor
- Lecture 25 - Basic amplifier structure
- Lecture 26 - Problems with the basic structure
- Lecture 27 - Adding bias and signal-ac coupling
- Lecture 28 - Common source amplifier with biasing
- Lecture 29 - Common source amplifier: Small signal equivalent circuit

Get DIGIMAT For High-Speed Video Streaming of NPTEL and Educational Video Courses in LAN

<http://www.digimat.in>

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

- Lecture 30 - Common source amplifier analysis: Effect of biasing components
- Lecture 31 - Constraint on the input coupling capacitor
- Lecture 32 - Constraint on the output coupling capacitor
- Lecture 33 - Dependence of I_D on V_{DS}
- Lecture 34 - Small signal output conductance of a MOS transistor
- Lecture 35 - Effect of g_{ds} on a common source amplifier; Inherent gain limit of a transistor
- Lecture 36 - Variation of g_m with transistor parameters
- Lecture 37 - Variation of g_m with constant V_{GS} and constant drain current bias
- Lecture 38 - Negative feedback control for constant drain current bias
- Lecture 39 - Types of feedback for constant drain current bias
- Lecture 40 - Sense at the drain and feedback to the gate-Drain feedback
- Lecture 41 - Intuitive explanation of low sensitivity with drain feedback
- Lecture 42 - Common source amplifier with drain feedback bias
- Lecture 43 - Constraint on the gate bias resistor
- Lecture 44 - Constraint on the input coupling capacitor
- Lecture 45 - Constraint on the output coupling capacitor
- Lecture 46 - Input and output resistances of the common source amplifier with constant V_{GS} bias
- Lecture 47 - Current mirror
- Lecture 48 - Common source amplifier with current mirror bias
- Lecture 49 - Constraint on coupling capacitors and bias resistance
- Lecture 50 - Diode connected transistor
- Lecture 51 - Source feedback biasing
- Lecture 52 - Common source amplifier with source feedback bias
- Lecture 53 - Constraints on capacitor values
- Lecture 54 - Sensing at the drain and feeding back to the source
- Lecture 55 - Sensing at the source and feeding back to the gate
- Lecture 56 - Ensuring that transistor is in saturation
- Lecture 57 - Using a resistor instead of current source for biasing
- Lecture 58 - Controlled sources using a MOS transistor-Introduction
- Lecture 59 - Voltage controlled voltage source
- Lecture 60 - VCVS using a MOS transistor
- Lecture 61 - VCVS using a MOS transistor - Small signal picture
- Lecture 62 - VCVS using a MOS transistor - Complete circuit
- Lecture 63 - Source follower: Effect of output conductance; Constraints on coupling capacitors
- Lecture 64 - VCCS using a MOS transistor
- Lecture 65 - VCCS using a MOS transistor: Small signal picture
- Lecture 66 - VCCS using a MOS transistor: Complete circuit
- Lecture 67 - VCCS using a MOS transistor: AC coupling the output
- Lecture 68 - Source degenerated CS amplifier

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

- Lecture 69 - CCCS using a MOS transistor
- Lecture 70 - CCCS using a MOS transistor: Small signal picture
- Lecture 71 - CCCS using a MOS transistor: Complete circuit
- Lecture 72 - C CVS using a MOS transistor
- Lecture 73 - C CVS using a MOS transistor: Gain
- Lecture 74 - C CVS using a MOS transistor: Input and output resistances
- Lecture 75 - C CVS using a MOS transistor: Complete circuit
- Lecture 76 - V CVS using an opamp
- Lecture 77 - C CVS using an opamp
- Lecture 78 - Negative feedback and virtual short in an opamp
- Lecture 79 - Negative feedback and virtual short in a transistor
- Lecture 80 - Constraints on controlled sources using opamps and transistors
- Lecture 81 - Quick tour of amplifying devices
- Lecture 82 - Signal swing limits in amplifiers
- Lecture 83 - Swing limit due to transistor entering triode region
- Lecture 84 - Swing limit due to transistor entering cutoff region
- Lecture 85 - Swing limit calculation example
- Lecture 86 - Swing limits-more calculations
- Lecture 87 - pMOS transistor
- Lecture 88 - Small signal model of the pMOS transistor
- Lecture 89 - Common source amplifier using the pMOS transistor
- Lecture 90 - Swing limits of the pMOS common source amplifier
- Lecture 91 - Biasing a pMOS transistor at a constant current; pMOS current mirror
- Lecture 92 - Converting nMOS transistor circuits to pMOS
- Lecture 93 - Bias current generation
- Lecture 94 - Examples of more than one transistor in feedback
- Lecture 95 - Gain limitation in a common source amplifier with resistive load
- Lecture 96 - nMOS active load for pMOS common source amplifier
- Lecture 97 - CMOS inverter
- Lecture 98 - Large signal characteristics of pMOS CS amplifier with nMOS active load
- Lecture 99 - Large signal characteristics of nMOS CS amplifier with pMOS active load
- Lecture 100 - Large signal characteristics of a CMOS inverter
- Lecture 101 - Active load amplifiers as digital gates
- Lecture 102 - Sensitivity of output bias to input bias in a CMOS inverter
- Lecture 103 - Self biasing a CMOS inverter
- Lecture 104 - An application of self biased inverters
- Lecture 105 - Current consumption of a self-biased inverter; Current biasing
- Lecture 106 - Amplifying a difference signal; Differential pair
- Lecture 107 - Differential pair-small signal basics

Get DIGIMAT For High-Speed Video Streaming of NPTEL and Educational Video Courses in LAN

<http://www.digimat.in>

NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

- Lecture 108 - Biasing a differential pair
- Lecture 109 - Differential pair with differential excitation
- Lecture 110 - Differential pair with a current mirror load
- Lecture 111 - Differential pair with a current mirror load - operating point
- Lecture 112 - Differential pair with a current mirror load - Norton equivalent current
- Lecture 113 - Differential pair with a current mirror load - Norton equivalent resistance
- Lecture 114 - Common mode gain
- Lecture 115 - Single stage opamp
- Lecture 116 - Single stage opamp: Input common mode swing limits
- Lecture 117 - Single stage opamp: Output swing limits
- Lecture 118 - Which transistor type to use for the second stage?
- Lecture 119 - Small signal gain
- Lecture 120 - DC negative feedback biasing of all stages
- Lecture 121 - DC negative feedback biasing of all stages (Continued...)
- Lecture 122 - Small signal model
- Lecture 123 - Swing limits
- Lecture 124 - Systematic offset; How to eliminate it
- Lecture 125 - Bipolar junction transistor(BJT): Large signal model
- Lecture 126 - BJT model for calculating operating points
- Lecture 127 - BJT small signal model
- Lecture 128 - Biasing a BJT
- Lecture 129 - Biasing a BJT, (Continued...)
- Lecture 130 - Amplifiers using BJTs
- Lecture 131 - PNP transistor