NPTEL Video Course - Electronics and Communication Engineering - NOC:Digital Circuits and Systems

Subject Co-ordinator - Prof. Shankar Balachandran

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction
Lecture 2 - Basic Boolean Logic
Lecture 3 - Boolean Theorems
Lecture 4 - Definitions, SoP and Pos
Lecture 5 - Algebraic Minimization Examples
Lecture 6 - Introduction to Verilog
Lecture 7 - Universality, Rearranging Truth Tables
Lecture 8 - Karnaugh Maps
Lecture 9 - K-Map Minimization
Lecture 10 - K-Map with Don't cares
Lecture 11 - Multiple Output Functions
Lecture 12 - Number Systems
Lecture 13 - Encoders and Decoders
Lecture 14 - Multiplexers
Lecture 15 - Multiplexer based Circuit Design
Lecture 16 - Verilog
Lecture 17 - Compiling and Running Verilog - A Demonstration
Lecture 18 - Sequential Elements
Lecture 19 - Gated Latches
Lecture 20 - Flipflops
Lecture 21 - Verilog - Assign Statement and Instantiation
Lecture 22 - Sequential Circuits
Lecture 23 - CMOS+Electrical Properties
Lecture 24 - Delays
Lecture 25 - Sequential Element Delays
Lecture 26 - More Sequential Circuits
Lecture 27 - Introduction to State Machines
Lecture 28 - Always Statement in Verilog
Lecture 29 - Sequential Logic Synthesis

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Lecture 30 - FSM Design Problems
Lecture 31 - State Minimization
Lecture 32 - State Assignment
Lecture 33 - Timing Sequential Circuits
Lecture 34 - Verilog Styles + Sequential Elements
Lecture 35 - GCD Algorithm
Lecture 36 - GCD Machines Datapath
Lecture 37 - GCD State Machine
Lecture 38 - GCD Top Level Module
Lecture 39 - Datapath in Verilog
Lecture 40 - Datapath Elements in Verilog
Lecture 41 - FSM in Verilog
Lecture 42 - Putting it all together
Lecture 43 - Pipelining
Lecture 44 - K-stage Pipeline
Lecture 45 - Interleaving and Parallelism
Lecture 46 - Blocking and Non-blocking Statements
Lecture 47 - Modeling Circuits with Pipelining
Lecture 48 - Signed Number Representation
Lecture 49 - Signed Number Addition
Lecture 50 - Adder/Subtracter
Lecture 51 - Fast Adders
Lecture 52 - Multiplication
Lecture 53 - Closing
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