

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

NPTEL Video Course - Electrical Engineering - NOC:Digital Electronic Circuits

Subject Co-ordinator - Prof. Goutam Saha

Co-ordinating Institute - IIT - Kharagpur

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

Lecture 1 - Introduction  
Lecture 2 - Transistor as a switch  
Lecture 3 - Performance Issues and Introduction to TTL  
Lecture 4 - Transistor Transistor Logic (TTL)  
Lecture 5 - CMOS Logic  
Lecture 6 - Basic Gates and their representations  
Lecture 7 - Fundamentals of Boolean Algebra  
Lecture 8 - Boolean Function to Truth Table and Implementaion Issues  
Lecture 9 - Truth Table to Boolean Function and Implementaion Issues  
Lecture 10 - Karnugh Map and Digital Circuit Realization  
Lecture 11 - Karnaugh Map to Entered Variable Map  
Lecture 12 - Quine - McClusky (QM) Algorithm  
Lecture 13 - Cost Criteria and Minimization of Multiple Output Functions  
Lecture 14 - Static 1 Hazard  
Lecture 15 - Static 0 Hazard and Dynamic Hazard  
Lecture 16 - Multiplexer  
Lecture 17 - Multiplexer  
Lecture 18 - Demultiplexer / Decoder  
Lecture 19 - Decoder with BCD Input and Encoder  
Lecture 20 - Parity Generator and Checker  
Lecture 21 - Number System  
Lecture 22 - Negative Number and 2s Complement Arithmetic  
Lecture 23 - Arithmetic Building Blocks - I  
Lecture 24 - Arithmetic Building Blocks - II  
Lecture 25 - Overflow Detection and BCD Arithmetic  
Lecture 26 - Magnitude Comparator  
Lecture 27 - Arithmetic Logic Unit (ALU)  
Lecture 28 - Unweighted Code  
Lecture 29 - Error Detection and Correction Code

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- Lecture 30 - Multiplication and Division
- Lecture 31 - SR Latch and Introduction to Clocked Flip-Flop
- Lecture 32 - Edge-Triggered Flip-Flop
- Lecture 33 - Representations of Flip-Flops
- Lecture 34 - Analysis of Sequential Logic Circuit
- Lecture 35 - Conversion of Flip-Flops and Flip-Flop Timing Parameters
- Lecture 36 - Register and Shift Register
- Lecture 37 - Shift Register
- Lecture 38 - Application of Shift Register
- Lecture 39 - Linear Feedback Shift Register
- Lecture 40 - Serial Addition, Multiplication and Division
- Lecture 41 - Asynchronous Counter
- Lecture 42 - Decoding Logic and Synchronous Counter
- Lecture 43 - Cascading
- Lecture 44 - Counter Design with Asynchronous Reset and Preset
- Lecture 45 - Counter Design as Synthesis Problem and Few Other Uses of Counter
- Lecture 46 - Synthesis of Sequential Logic Circuit
- Lecture 47 - Moore Model and Mealy Model
- Lecture 48 - Algorithmic State Machine (ASM) Chart and Synthesis of Sequential Logic Circuit
- Lecture 49 - Circuit Realization from ASM Chart and State Minimization
- Lecture 50 - State Minimization by Implication Table and Partitioning Method
- Lecture 51 - Digital to Analog Conversion - I
- Lecture 52 - Digital to Analog Conversion - II
- Lecture 53 - Analog to Digital Conversion - I
- Lecture 54 - Analog to Digital Conversion - II
- Lecture 55 - Certain Performance Issue of ADC and DAC
- Lecture 56 - Introduction to Memory
- Lecture 57 - Static Random Access Memory (SRAM)
- Lecture 58 - Dynamic RAM (DRAM) and Memory Expansion
- Lecture 59 - Read Only Memory (ROM)
- Lecture 60 - PAL, PLA, CPLD, FPGA