DRONACHARYA COLLEGE OF ENGINEERING

KHENTAWAS, FARRUKHNAGAR, GURGAON, HR

Department: EEE

Academic Session: 2020-21 (MAY-AUG, 2021)

Lecture Plan with Asssignment questions

Subject with code: Digital Electronics(PCC-EE-202G)

Name of Faculty with designation : Dr.Jyothi Varanasi, Associate Professor

S.No.	Month	Date & Day	Sem-Class	Unit	Topic/Chapter covered	Write Lecture Wise Questions
1			IV EEE	I	Fundamentals of Digital Systems and logic families: Digital signals, digital circuits, AND, OR, NOT	1. List out all the logic gates with their symbols. 2. Write the truth tables of AND Gate and OR Gate.
2			IV EEE	I	NAND, NOR and Exclusive-OR operations	1.Write the truth tables of NAND Gate and NOR Gate.
3			IV EEE	I	Boolean algebra, examples of IC gates, number systems-binary, signed binary	1.List out all Postulates and theorems of Boolean Algebra. 2.What is DeMorgan's Theorem?
4			IV EEE	I	octal, hexadecimal number, binary arithmetic, one's and two's complements arithmetic, codes	1. Find 1's complement and 2's complement of a binary number. 2. Perform subtraction of two binary numbers using 2's complement.
5			IV EEE	I	error detecting and correcting codes, characteristics of digital lCs, digital logic families, TTL	1.Waht are the error detection codes? 2. Name some of the applications of error detection.
6			IV EEE	I	Schottky TTL and CMOS logic, interfacing CMOS and TTL, Tri-statelogic.	1.Explain CMOS logic. 2.What is TTL logic?
7			IV EEE	II	Combinational Digital Circuits:Standard representation for logic functions	1.What is a canonical form? 2. Write canonical &standatd forms of a boolean function.
8			IV EEE	II	K-map representation, simplification of logic functions using K-map	1.Analysis based Questions on SOP&POS forms. 2. Simplify the given boolean function using K-map.
9			IV EEE	II	minimization of logical functions, Don't care conditions	1.Show is the significance of Don't care conditions in K-map simplification with suitable example.

10			IV EEE	II	Multiplexer	1. Explain 4-to-1 multiplexer. 2.Explain implementation of boolean function using multiplexer.
11			IV EEE	II	De- Multiplexer/Decoders	1.Explain a 3-to-8 line decoder with the diagram.
12			IV EEE	II	Adders, Subtractors, BCD arithmetic, carry look ahead adder	1.Explain Half Adder with the help of logic diagram. 2.Explain Full Adder with the help of logic diagram.
13			IV EEE	II	serial adder, ALU, elementary ALU design, popular MSI chips, digital comparator, parity	1.Write the full form of ALU. 2. Explain the design of ALU. 3.Describe various functions of ALU.
14			IV EEE	II	checker/generator, code converters, priority encoders, decoders/drivers for display devices	1.Describe octal to binary encoder with the help of logic diagram and truth table.
15			IV EEE	II	QM method of function realization.	1.Explain QM method for simplification with suitable example.
16			IV EEE	III	Sequential circuits and systems:A 1-bit memory, the circuit properties of Bistable latch	1.Differentiate Sequential circuits and combinational circuits. 2.Draw a basic flip-flop circuit with NAND gates.
17			IV EEE	III	the clocked SR flip flop, Master Slave J- K	1.What is meant by Edge triggering? 2.Compare JK and SR flip-flops.
18			IV EEE	III	T and D types flip flops, applications of flip flops	1.Compare JK and T flip-flops. 2.Explain the working of D flip-flop and how it is different from SR flip-flop.
19			IV EEE	III	shift registers, applications of shift registers	1. Explain the working shift register with the help of block diagram. 2.Explain Bidirectional shift register with parallel load.
20			IV EEE	III	serial to parallel converter, parallel to serial converter, ring counter, sequence generator	1.Draw the state diagram of 3-bit binary counter. 2. Describe ring counter with its state diagram.
21			IV EEE	III	ripple(Asynchronous) counters, synchronous counters, counters design using flip flops	1. Describe ripple counter with its state diagram. 2. Compare syncronous and asynchronous counters.
22			IV EEE	III	special counter IC's, asynchronous sequential counters, applications of counters.	1.Mention various applications of counters.
23			IV EEE	IV	A/D and D/A Converters:Introduction to Digital to analog converters	1. Describe A/D converter. 2. Describe D/A converter.
24			IV EEE	IV	weighted resistor/converter, R-2R Ladder D/A converter	1.Explain the operation of R-2R Ladder D/A converter.

25			IV EEE	IV	specifications for D/A converters, sample and hold circuit	1.List out the specifications of D/A converters.
26			IV EEE	IV	Introduction to analog to digital converters: quantization and encoding, parallel comparator A/D converter	1. Describe A/D converter. 2. Describe D/A converter.
27			IV EEE	IV	successive approximation A/D converter, counting A/D converter, dual slope A/D converter.	1.Explain dual slope A/D converter with its block diagram.
28			IV EEE	IV	Semiconductor memories and Programmable logic devices	1.Write various applications of Semiconductor memories and Programmable logic devices.
29			IV EEE	IV	Memory organization and operation, expanding memory size	1. Explain the expansion of memory size.
30			IV EEE	IV	classification and characteristics of memories, sequential memory, read only memory (ROM), read and write memory(RAM)	1.Describe ROM. 2. Differentiate ROM & RAM.
31			IV EEE	IV	content addressable memory (CAM), charge de coupled device memory (CCD)	1. Describe the functions of CAM and CCD.
32			IV EEE	IV	commonly used memory chips, ROM as a PLD	1.Explain the working of ROM as a PLD.
33			IV EEE	IV	Programmable logic array, Programmable array logic.	1.Compare PLA and PAL. 2. How PAL is different from PLA in construction.
34			IV EEE		Revision Class	Revision of Unit-1& Unit-2
35			IV EEE		Revision Class	Class Test-1
36			IV EEE		Revision Class	Class Test-2