INSTITUTE OF ENGINEERING AND MANAGEMENT
GOURAHARI VIHAR, PO: RANIPUT, JEYPORE – 764 005

LESSON PLAN

Name of the Subject: Digital Electronics
Name of the Faculty: Suvendu Swain
Semester: Third Semester **Branch:** ETC Engineering
Semester From: July to December **No. of Weeks:** 15 Weeks

Week	Class Day	Theory/ Practical Topics
1st	1st	1.1 Introduction to Digital Electronics
	2nd	1.1 Introduction to various number systems and conversion from one system to another number system
	3rd	1.2 Arithmetic operations of Binary numbers, 1's & 2's compliment form and subtraction using compliment method
	4th	1.3 Weighted & non-weighted codes- Binary,excess-3 and Gray
2nd	1st	1.4 Logic Gates – symbol, function, truth table & timing diagram
	2nd	1.5 Concept of Universal gates and realization of various gates using NAND gate
	3rd	1.5 Realization of various gates using NOR gate
	4th	1.6 Boolean algebra, Boolean expression
3rd	1st	1.6 Various Boolean laws and De-Morgan's Theorem
	2nd	1.7 SOP and POS representation of Logic Expressions
	3rd	1.8 Karnaugh map (3 & 4 Variables)&Minimization of logical expressions ,don't care conditions
	4th	Revision of Unit – 1 and solving numerical from the chapter
4th	1st	2.1 Introduction to various Combinational logic circuits
	2nd	2.1 Adder- half adder and Full Adder
	3rd	2.1 Subtractor – Half and Full Subtractor
	4th	2.1 Serial and Parallel Binary 4-bit adder
5th	1st	2.2 Multiplexer(4:1)
	2nd	2.2 De-multiplexer (1:4)
	3rd	2.2 Encoder
	4th	2.2 Priority encoder
6th	1st	2.2 3-bit Comparator
	2nd	2.3 Seven segment Decoder
	3rd	Revision of Unit – 2
	4th	3.1 Differentiation between Combinational & Sequential Logic circuit
7th	1st	3.1 Principle of Latch and Flip-flop and its operation
	2nd	3.1 Types of Flip-flop – SR, JK, D, T
	3rd	3.2 SR Flip-flop using NAND & NOR latch(unclocked)
	4th	3.3 Clocked SR flip flop
8th	1st	3.3 Clocked JK, D and T flip-flop
	2nd	3.3 Circuit diagram, Truth table and logical expression of SR and JK flip-flop
	3rd	3.3 Circuit diagram, Truth table and logical expression of D and T flip-flop
	4th	3.3 Operation of Master- Slave JK flip-flop
9th	1st	3.4 Concept of Racing and how it can be avoided

	2nd	3.4 Advantages and Disadvantages of Master- Slave JK flip-flop
	3rd	Revision of Unit – 3
	4th	4.1 Shift registers- SISO, SIPO, PISO, PIPO
10th	1st	4.1 Operations of shift registers
	2nd	4.2 Universal shift registers-Applications
	3rd	4.3 Counters and its types and operation 4.4 Binary counter, Asynchronous ripple counter
	4th	4.4 Operation of Decade counter, Synchronous counter and Ring counter
11th	1st	4.5 Concept of memories- RAM, ROM, SRAM, DRAM & PS RAM
	2nd	4.6 Concept of PLD and its applications
	3rd	Revision of unit – 4
	4th	5.1 Introduction to A/D & D/A convertors and its need
12th	1st	5.2 D/A conversion using weighted resistors methods
	2nd	5.3 D/A conversion using R-2R ladder network
	3rd	5.4 A/D conversion using counter method
	4th	5.5 A/D conversion using Successive approximate method
13th	1st	Revision of unit – 5
	2nd	6.1 Concept of Integrated circuit and its need in present.
	3rd	6.1 IC Fabrication process
	4th	6.1 Description of various steps involved in IC Fabrication process
14th	1st	6.2 Digital ICs and its characteristics- propagation Delay , Fan-in, fan-out, power dissipation
	2nd	6.2 Explaining terms like Noise margin, Power supply requirement and Speed with reference to logic Families
	3rd	6.3 Features, Circuit operation & applications of TTL(NAND) logic circuit
	4th	6.3 Features, Circuit operation & applications of CMOS logic circuit using NAND gate
15th	1st	6.3 Features, Circuit operation & applications of CMOS logic circuit using NOR gate
	2nd	6.3 Comparing different logic circuits
	3rd	Revision of Unit – 6
	4th	Overall revision of the subject