Course Name: Digital Electronics (BECT303)

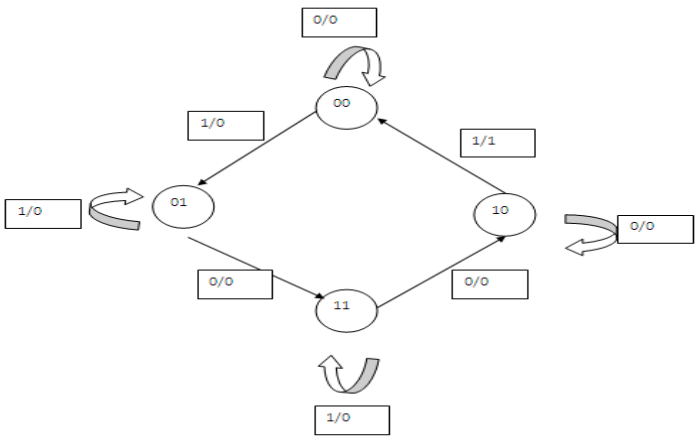
Course Outcomes:

At the end of the course the student should be able to:

CO1 Develop a digital logic and apply it to solve real life problems.
CO2 Analyze, design and implement combinational logic circuits.
CO3 Analyze, design and implement sequential logic circuits.
CO4 Classify different semiconductor memories.
CO5 Simulate and implement combinational and sequential circuits

.**Model Question Paper**

1a	Find the value of b 1. (128)10 = (1003)b 2. (A2C)16 = $(5054)_b$	4	CO1	L2
1b	Perform following conversion 1. $(1001101)_G$ =()$_2$ 2. $(5986)_{10}$ =()$_{BCD}$	4	CO1	L2
1c	Draw the circuit diagram that implements the expression x=$\tilde{A}BC(\widetilde{A+D})$ using gates with no more than three inputs.	6	CO1	L3
1d	Perform the minimization using tabular method Y=$\sum_m(1,3,7,11,15)+\sum_d(0,2,5,8,14)$	10	CO1	L2
2a.	Describe BCD Adder Using neat Diagram. Why its called Decimal Adder	8	CO2	L1
2b.	Implement 4-bit Binary Parallel Adder/Subtractor.	4	CO2	L3
2c.	Implement the following function with 8:1 MUX. 1. F(w,x,y,z)= $\sum_m(0,1,3,5,8,9,15)$ 2. (A,B,C)= $\sum_\pi(2,3,4,7)$	8	CO2	L3
3a.	Implement Full subtractor circuit using only NAND gate.	6	CO2	L3
3b	Draw the circuit of S-R flip flop using NAND Gate and explain in detail.	8	CO3	L1

3c	Explain working of master slave J-K flip flop.	6	CO3	L2
4a	What is counter? Design a 4bit Synchronous counter using JK flip flop which can count only odd number with its waveform	12	CO3	L1
4b.	Explain briefly the operation of TTL NAND gate in tri state output configuration.	8	CO4	L2
5a.	Write the difference between Static RAM and Dynamic RAM.	8	CO4	L1
5b.	What is Hazard? Explain different types of Hazard.	6	CO4	L1
5c.	Explain with diagram 3bit ring counter using D filp flop .	6	CO3	L3
6a.	A PN flip flop has four operations: clear to 0, no change, complement and set to 1, when inputs P and N are 00,01,10,11 respectively. 1. Tabulate the characteristic table. 2. Derive the characteristic equation. 3. Tabulate the excitation table. 4. Show how the PN flip flop can be converted into D flip flop	10	CO3	L3
6b.	Design a 4bit Magnitude Comparator and also implement it with the help of basic gates.	10	CO2	L2
7a.	For the following state diagram ,design the synchronous sequential by using D flip flop 	10	CO5	L4
7b.	What is lock out condition in counter? Design a synchronous	10	CO5	L4

	cycle counter that will count the clock pulses through state 0,1and 2 each time a start pulse is issued. Also examine the output with its timing diagram.			
8a.	Realize the following multiple output function using 3 inputs 4 product terms and 2 output PLA: F1(x,y,z)= $\sum_m(0,1,3,5)$ F2(x,y,z)= $\sum_m(3,5,7)$	10	CO5	L3
8b	Write short note on following 1. PROM 2. Memory Addressing 3. Sequential Access memory	6	CO4	L1
8c	Design 32:1 MUX by using 8:1 Mux and 4:1 Mux.	4	CO2	L2