Birla Institute of Technology and Science Pilani
CS F342 Computer Architecture
Second Semester 2017-18
Lab Sheet– 2 (23rd January 2018)

Behavioral Modeling Style

In today's lab we shall implement a few digital circuits which we have studied in digital design using behavioral modeling style and verify their functionality using a suitable test bench.

1. Implement a D Flip-Flop. (positive edge, active high synchronous reset, single output Q)

2. Implement a up/down mod-10 counter (counts from 0 to 9). (positive edge, active high asynchronous reset)

3. Implement a 8:1 Multiplexor using case statement.

4. A four bit ALU. The ALU operates on two four bit operands a and b to produce a four bit output. It can perform eight different operations on the operands. Use case statement.

S.No.	Opcode	Function
1	000	A – B
2	001	A + B
3	010	A XOR B
4	011	A AND B
5	100	A OR B
6	101	Shift right A by 1 bit (logical)
7	110	Shit Left A by 1 bit (logical)
8	111	Shift arithmetic right A by 1 bit

****** The End ******