

### DDCO Laboratory Mini\_Project List:

Session: Aug – Dec, 2020

1.	Design & implement a Sequential Binary Multiplier.
2.	Design & implement shift-left, shift-right & rotate operations for the 16-bit ALU using multiplexers.
3.	Design & implement a Circuit to count the number of one's in a given input data.
4.	Design & implement a 4-bit Shift Register (parallel-in, parallel-out & parallel-in, serial-out).
5.	Design & implement a 4-bit Shift Register (serial-in, serial-out & serial-in, parallel-out).
6.	Design & implement shift-left & shift-right operations for the existing register array.
7.	Design & implement a Ring and Johnson Counter with control logic.
8.	Design & implement a 4-bit Up Counter, Down Counter.
9.	Design & implement a 3-bit Up/Down Counter.
10.	Design & implement a Serial 2's Complementer with a Shift Register and a flip-flop. The binary number is shifted out from one side and it's 2's complement shifted into the other side of the shift register.
11.	Design & implement a four-bit Register with Four D flip-flops and Four $4 \times 1$ Multiplexers with mode selection inputs s1 and s0. The Register operates according to the values of select lines, if s1s0=00, no change, s1s0=01 complement output, s1s0=10, shift the bits to the right, & s1s0=11, shift the bits to left..
12.	Design & implement a 16-bit Shift Adder (Serial Adder).
13.	Design & implement a sequence generator.( Even number generator- 0,2,4,6,8)
14.	Design & implement a 16-bit barrel shifter.
15.	Design & implement Booths multiplication algorithm.
16.	Design & implement 8-bit prefix-adder.
17.	Design & Implement Sequential Multiplier circuit.
18.	Design and Implement Division algorithm.