

## MECE 223 DIGITAL DESIGN LABORATORY ASSIGNMENT

Design and implement a three-bit synchronous binary counter using flip-flops and combinational circuits. The counter counts up from 0 to 7 continuously. Your circuit should perform one of the following functions:

1. If the counter equals an even number, the output should be 1; otherwise, it should be 0.
2. If the counter equals an odd number, the output should be 1; otherwise, it should be 0.

Based on your design, please complete the following tasks:

- a. Tabulate the characteristic table of the flip-flop
- b. Tabulate the excitation table of the flip-flop
- c. Draw the state diagram
- d. Draw the state table
- e. Draw the sequential logic circuit with the Proteus Design Program.
- f. Implement the Circuit from Part e., observe the results, collect data, and present it to your instructor for approval
- g. Properly document your results and submit your report due on 10.01.2025