

Switching Theory & Logic Design Laboratory
CSE Department, IIT Kharagpur
Spring Semester 2023-24

Module 2 : SEQUENTIAL CIRCUITS AND FSM

Assignment 8 :

1. Implement a 4-bit shift register using D flip-flops, and verify its operation. The input K is a control signal and the circuit performs as follows :
 - (i) When $K = 0$: Shift left operation.
 - (ii) When $K = 1$: Shift right operation.
2. Design a 4-bit linear feedback shift register (LFSR) that generates 15 distinct pseudo-random patterns (excluding all-zero) in sequence. Hence modify the circuit so that all patterns including all-zero are generated.

(1 day)