

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

**Module 2 : SEQUENTIAL CIRCUITS AND FSM**

**Assignment 9 :**

Design and implement a 12-hour digital clock that displays the time in hours and minutes. The time can be set to any initial value by the user. You may consider using the following ICs:

1. 555-timer : Design an Astable Multivibrator to operate at 1 sec time period.  
(Assume  $C = 10\mu f$ )
2. Three 7-segment LED displays (two for minutes display & one for hour (One's place display), Two logic display : Hour (Ten's place) and second (blinking)
3. Counter ICs : 7490, 7492, 7493, 74161, 74163 and 74193

Please study the data sheets of the corresponding ICs to understand their operations.

(2 day)