

## EXPERIMENT

### 1. OBJECTIVES:

- a. Write a Matlab program to find Motor Power, torque, speed and Battery energy requirement for EV parameters are mentioned below over FUDS drive cycle:
  - a. Electric 2W
    - i. Mass=180
    - ii. Cd=1
    - iii. Frontal area=0.6
    - iv.  $\mu_{rr} = 0.015$  (Radial Ply Tyre)
    - v. Tyre radius = 0.28
    - vi. Gear ratio = 2
    - vii. Efficiency of motor= 0.80
    - viii. Transmission efficiency=95%
    - ix. Power requirement for accessories= 50 Watt
  - b. Plot speed, acceleration and distance *w.r.t.* time with top speed in title as well
  - c. Plot motor power, torque and speed *w.r.t.* time with Peak values in title as well
  - d. Plot Energy required *w.r.t.* time with total energy required in title as well

### 2. SOFTWARE REQUIRED

- a. MATLAB R2021a

### 3. PROCEDURE

- a. Open MATLAB  
Open new .m-file
- b. Type the program
- c. Save in current directory
- d. Compile and Run the program
- e. For the output see command window\ Figure window

#### 4. OUTPUT



