

### **PROJECT 1) MOSFET DRIVE CIRCUIT (5 P)**

Prepare a MOSFET drive circuit. You can work with another student as a two member group. Using a load, prove turn on/off states of a single Mosfet. For example, you can adjust the voltage on a high-value resistance or turn on a light.....

- Any drive circuit topology is accepted. No limitation with topology.
- The driver circuit will be displayed in a video that does not exceed 30 seconds.
- All group members must be seen at the end of the video.
- The Driving circuit diagram and the list of material used must be presented in a PDF document.
- At the end of pdf document, the number, name and signature of students performing the riding circuit must be included.

### **PROJECT 2) INVERTER DESIGN (5 P)**

Design a three phase inverter with sinusoidal PWM in the Simulink, Matlab. Supply to three phase RL load with this inverter. Obtain switching signals. Measure phase currents and voltages. Parameters:  $f = 50 \text{ Hz}$ ,  $V = 220 \text{ V Dc}$ ,  $R = 5 \text{ m}\Omega$ ,  $L = 5 \text{ mH}$

-No group, Alone

### **OPTIONAL ( +5)**

Instead R-L load, you may select available induction motor model in the Simulink library as a load. Drive that motor with this inverter at nominal speed. Obtain speed, motor voltages and currents in addition to the switching frequency array.

**Assignment will be collected at 7 January 2023 and desired format via Classroom.**