ECE 4643: Power Electronics

Course Project: Part I

Due to October 25, 2019. 4:00 PM

Design a 3ϕ Full-wave AC-DC rectifier for the following specifications:

1– Input power factor $\text{PF}_{in} > 0.95$ (design an input LC filter).

2– Output DC voltage $V_{DC} = 350$ V, and the ripple $|\Delta V| \leq \pm 5\%$ (design an output C filter).

3– Load variations: $5 \leq I_{dc} \leq 10$ A for which V_{DC} does not change and $|\Delta V| \leq \pm 5\%$.

Design the rectifier, and test its performance using MATLAB/SIMULINK. In the simulated model select a resistive load (static load) with $R_L = 50\,\Omega$, and the supply 3ϕ at 60 Hz.