

King Fahd University of Petroleum and Minerals
Department of Electrical Engineering

EE460 Power Electronics Project # 1

Three-phase wye-wye & delta connected transformer to diode rectifiers as shown in Figure 1. The line-to-line voltage secondary of transformer is 220-V (rms). The rectifier is connected to highly inductive load, $I_0 = 100$ A.

Design the 12-pulse rectifier by determining the rating for all components used in the circuit then calculate and show the following:

- (a) The total harmonic distortion of the secondary input current, THD.
- (b) The rms output voltage, V_0 , and THD.
- (c) Draw the input currents in both Y and connected source (lines and phases).
- (d) Draw the currents in all diodes.
- (e) Draw the voltage across each diode.
- (f) Verify your design by using Pspice simulation.

Due date: Nov. 26, 2007