

Homework #5 – ECEN 667 Fall 2025

Due Thursday, November 20th, 2025, at 8 AM.

1. In PowerWorld open the HW5_Prob1_37BusCLOD case, which represents the loads at all the buses using the CLOD model discussed in class. The contingency is a nine cycle fault on the line between buses 28 and 31, cleared by opening the line. In the Model Explorer select Transient Stability, Load Characteristics to view and change the CLOD model parameters. Comment on the impact of varying the percentage of large motors, small motors, discharge lighting and constant power load.
2. The case HW5_Prob2 case models a four bus, four generator system with GENROU models. Using the tool or method of your choice, determine the frequency and damping for the key bus frequency modes. Analyze the data from 0.1 to 5 seconds, and you can ignore modes with frequencies below 0.2 Hz. To provide each student with a customized result, change the H value for the i^{th} generator to equal the i^{th} last digit in your student ID (where i goes from 1 to 4 so $i=1$ is the last digit); treat a zero as 10.