

ECE471 INDUSTRIAL POWER SYSTEMS

Assignment # 2 Hints & Answers

Both problems 1 & 2 are essentially the same. Only ampacity is being considered to size the cables; fault level and voltage regulation will have to be considered later.

For MCC1:

Total motor current = 119.2 A. Total non-motor current = 91.4 A, and since this is less than half of the total load, the neutral does not have to count as a current-carrying conductor.

Add 25% of largest motor and 25% to non-motor load (because it is continuous) and the feeder ampacity is 251 A, which requires 250 MCM.

The neutral must be counted when sizing the conduit so 4 wires are installed, resulting in 2½" conduit being required.

3. Feeder spec. is: 2½" C, 2 x 4 wire - 250 MCM, XHHW (Cu).