School of Electrical and Electronic Engineering
Technological University Dublin

BE in Electrical and Electronic Engineering

Power Systems Operations and Economics

Transmission Systems Assignment (h)

For this assignment you are required to calculate the magnetic field level in the vicinity of a distribution line. Calculate and plot the field levels at a distance of 1m above ground level and for a distance of 20m either side of the line. Calculate the rms field level in μT for the magnetic flux density. Determine the field when the line is carrying rated power. For this assignment you have been allocated the following:

66kV overhead line, horizontal configuration
and
66kV underground cable, horizontal configuration

You will need to determine the typical height of the overhead line and the depth of the conductors for the underground cables and conductor spacing for both. (Ensure that you state all parameters you use in your analysis and identify the source of this information.) Compare the field levels for both the overhead and underground cable configurations. What conclusions do you draw?

Present your results in a report, addressing each of the sections and including relevant calculations as required. Ensure you state any assumptions made. Include references to any sources you use. Compare the field levels for the horizontal and vertical configurations. Prepare and submit a short presentation of your main findings. This presentation will be given to the group.

This assignment due on **Friday 8 April 2022.**

Michael Conlon
March 2022