
SECTION HEADING

ELUT 1115: Generation, Transmission and Distribution

Description

Generation, Transmission and Distribution is designed to simulate the Power Industry. Through the use of laboratory projects, the student will receive background in understanding the concepts of generation, transmission and distribution of electric power.

Credits

3

Topics to be Covered

1. Phase sequence of a three-phased line, real, apparent, and reactive power
2. Phase angle between the voltages at the sending and receiving ends of a transmission line
3. The effects of resistance, inductance, and capacitance on an electrical line
4. The effects of powerfactor and ways to correct it.
5. Power generation and consumer access

Learning Outcomes

1. Use the functions sine, cosine, and tangent, which define the relationship between real, reactive and apparent power.
2. Explain effective resistance in an ac circuit and show how eddy current losses and hysteresis losses cause effective resistance to be greater than the true ohmic resistance.
3. Solve series circuit problems involving resistance, inductive reactance, and capacitive reactive components, making use of the appropriate formulas.
4. Develop vector diagrams showing the relationship between the voltage across the R, XL, XC components and the applied line voltage.
5. Connect single-phase R loads, XL loads, XC loads, and other electrical devices, using wye connection and the delta connection, to form three-phase circuits.
6. Calculate the power (in volt-amperes), the true power (in watts), and reactive power (vars) in three-phase systems.

Credit Details

Lecture: 2

Lab: 1

OJT: 0