Sri.A.S.N.M.GOVT.COLLEGE(A),PALAKOL,W.G.DT

NAAC RE-ACCREDITED WITH B GRADE (CGPA 2.61)
PALAKOL, WEST GODAVARI Dist., A.P., Pin. 534260

DEPARTMENT OF PHYSICS

FIELD VISIT 28.12.2021

Sri A S N M GDC (A) , PALAKOL Department of Physics conducted field visit to Electrical Power substation ,Palakol for 3rd B.Sc students on 28.12.2021. 50 students from III B.Sc M.P.C & M.P.Cs groups along with 4 Lecturers of Dept of Physics Sri G.Srinivasa Rao, Dr A.P.V.Appa Rao, Dr K.Ramanarayana, Smt Padmalatha have participated in this Field Trip, to get the practical experience about the functioning of the power Station. Assistant Engineer Sri V.Nageswara Rao has explained about the functioning of substation to the students.

Learning Objectives:

Power Transformer Definition

A power transformer is a static machine used for transforming power from one circuit to another without changing the frequency. As there is no rotating or moving parts, a transformer is classified as a static device. Transformer operates on an AC supply. Transformers operate based on the principle of mutual induction.

Use of Power Transformers

Generation of electrical power in low voltage level is very much cost effective. Theoretically, this low voltage level power can be transmitted to the receiving end. This low voltage power if transmitted results in greater line current which indeed causes more line losses

But if the voltage level of a power is increased, the current of the power is reduced which causes reduction in ohmic or I^2R losses in the system, reduction in cross-sectional area of the conductor i.e. reduction in capital cost of the system and it also improves the voltage regulation of the system. Because of these, low level power must be stepped up for efficient electrical power transmission.

This is done by step up transformer at the sending side of the power system network. As this high voltage power may not be distributed to the consumers directly, this must be stepped down to the desired level at the receiving end with the help of step down transformer. Electrical power transformer thus plays a vital role in power transmission.
Two winding transformers are generally used where ratio of high voltage and low voltage is greater than 2. It is cost effective to use auto transformer where the ratio between high voltage and low voltage is less than 2.

Again a single unit three phase transformer is more cost effective than a bank of three single phase transformers unit in a three phase system. But a single three phase transformer unit is a bit difficult to transport and have to be removed from service entirely if one of the phase winding breaks down.

Sri.A.S.N.M.GOVT.COLLEGE(A),PALAKOL,W.G.DT

DEPARTMENT OF PHYSICS

FIELD VISIT - **Electrical Power substation ,Palakol** 28.12.2021







