SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

An Autonomous Institution

Accredited by NAAC – UGC with 'A' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE NAME : 19EE501 TRANSMISSION & DISTRIBUTION

III YEAR /V SEMESTER EEE

Unit 3 – Analysis of Transmission Lines

Voltage Regulation & Transmission Efficiency

Voltage Regulation

When a transmission line is carrying current, there is a voltage drop in the line due to resistance and inductance of the line. The result is that receiving end voltage (V_R) of the line is generally less than the sending end voltage (VS). This voltage drop ($V_S - V_R$) in the line is expressed as a percentage of receiving end voltage VR and is called voltage regulation

The difference in voltage at the receiving end of a transmission line **between conditions of no load and full load is called voltage regulation and is expressed as a percentage of the receiving end voltage.

$$\%\text{ age Voltage regulation} = \frac{V_S - V_R}{V_R} \times 100$$

Transmission efficiency.

. The power obtained at the receiving end of a transmission line is generally less than the sending end power due to losses in the line resistance.

The ratio of receiving end power to the sending end power of a transmission line is known as the transmission efficiency of the line

$$\%\text{ age Transmission efficiency, } \eta_T = \frac{\text{Receiving end power}}{\text{Sending end power}} \times 100$$

$$= \frac{V_R I_R \cos \phi_R}{V_S I_S \cos \phi_S} \times 100$$

REFERENCES

- Wadhwa, C.L., “Electrical Power Systems”, New Age International Publishers Ltd., New Delhi, 7th Edition, 2017.
- Kothari D. P., Nagrath I. J., “Modern Power System Analysis”, McGraw Hill India Limited, New Delhi, 4th Edition 2011.
- Mehta, V.K., Rohit Mehta, “Principles of Power Systems”, S.Chand& Company Private Limited, New Delhi, 4thRevised Edition, 2011.
- Singh S.N, “Electric Power Generation, Transmission and Distribution”, PHI Learning Private Limited, New Delhi, 2ndEdition, 2009.
- Uppal, S.L., Rao, S., “Electrical Power”, Khanna Publishers Limited, New Delhi, 15thEdition, 2014.

THANK YOU