

EE8007 EHVAC TRANSMISSION

DETAILED SYLLABUS

OBJECTIVES:

To impart knowledge about the following topics:

- EHVAC Transmission lines
- Electrostatic field of AC lines
- Corona in E.H.V. lines

UNIT I INTRODUCTION

EHVAC Transmission line trends and preliminary aspect - standard transmission voltages – Estimation at line and ground parameters-Bundle conductors: Properties -Inductance and Capacitance of EHV lines – Positive, negative and zero sequence impedance – Line Parameters for Modes of Propagation.

UNIT II ELECTROSTATIC FIELDS

Electrostatic field and voltage gradients – Calculations of electrostatic field of AC lines – Effect of high electrostatic field on biological organisms and human beings – Surface voltage gradients and Maximum gradients of actual transmission lines – Voltage gradients on sub conductor.

UNIT III POWER CONTROL

Electrostatic induction in un energized lines – Measurement of field and voltage gradients for three phase single and double circuit lines – Un energized lines. Power Frequency Voltage control and overvoltage in EHV lines: No load voltage – Charging currents at power frequency- Voltage control – Shunt and Series compensation – Static VAR compensation.

UNIT IV CORONA EFFECTS AND RADIO INTERFERENCE

Corona in EHV lines – Corona loss formulae-Charge voltage diagram- Attenuation of traveling waves due to Corona – Audio noise due to Corona, its generation, characteristic and limits. Measurements of audio noise radio interference due to Corona - properties of radio noise – Frequency spectrum of RI fields – Measurements of RI and RIV.

UNIT V STEADY STATE AND TRANSIENT LIMITS

Design of EHV lines based on steady state and transient limits - EHV capabilities and their characteristics-Introduction six phase transmission – UHV.

TEXT BOOKS:

1. Rokosh Das Begamudre, "Extra High Voltage AC Transmission Engineering"– Wiley Eastern LTD., NEW DELHI 1990.
2. S. Rao, "HVAC and HVDC Transmission, Engineering and Practice" Khanna Publisher, Delhi, 1990.

Diploma, Anna Univ UG & PG Courses

Notes

Syllabus

Question Papers

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REFERENCES

1. Subir Ray, "An Introduction to High Voltage Engineering", Prentice Hall of India Private Limited, 2013.
2. RD Begamudre, "Extra High Voltage AC Transmission Engineering"– New Academic Science Ltd; 4 edition 2011.
3. Edison, "EHV Transmission line"- Electric Institution, GEC, 1968.