

SEMESTER <i>Eighth</i>	DEPARTMENT <i>Power Engineering</i>	COURSE TITLE <i>High Voltage</i>
COURSE CODE <i>EP803</i>	HOURS: 3 UNITS: 3	COURSE SPECIFICATIONS <i>Theoretical Content</i>
1. Introduction to High Voltage Technology. ➤ Define the importance of high voltage and ultra high voltage steps in transmission systems.		
2. Understand The Nature of Phenomenon in High Voltage Systems. Understand the nature of types of discharges. ➤ Decay discharge. ➤ Spark discharge. ➤ Arc charge. ➤ Corona discharge.		
3. Learn the Types and Characteristics of Insulating Materials Used in High Voltage and Their Insulating Voltage Withstand Levels. ➤ Study the characteristics of solid insulating materials. ➤ Study the characteristics of gaseous insulating materials. ➤ Study the characteristics of liquid insulating materials. ➤ Study the characteristics of plasma. ➤ Study the electrical and mechanical characteristics of insulators and requirements for insulators in HV		
4. Learn the Power System Transients in HV Systems and Various Methods of Protection Against Surges. Transients' Modifications. ➤ Study the types of surges in HV systems. ➤ Learn the methods of protection against surges. ➤ Learn the methods of transients' modifications.		

5. Understand the Main Concepts of Insulation Coordination in High Voltage Systems.

- Understand the concepts of basic impulse insulating level and critical flashover voltage used in insulation coordination.

6. Study Earthing Principles in HV Systems.

- Learn the advantages and disadvantages of earthed neutral directly or through resistance.
- Learn the advantages and disadvantages of isolated neutral.
- Study the nature of arc caused by faults.

References:

- 1- *Electric Power Systems*, B.M. Weedy
- 2- *Library of Schneider Company*.
- 3- *Library of Siemens Company*.
- 4- *Switchgear Protection and Power Systems*, Sunil S. Rao; Khanna Publishers.