

Honor Subject:

PEL7D014	HIGH VOLTAGE ENGINEERING	4-0-0
Module-1		8 hours
University Portion (80%):		7 hours
Generation of high voltage		
Generation of high direct current- voltage, Alternating Current- voltage, Impulse voltage and Impulse currents. [Text Book 1:6.1, 6.2,6.3]		
College/Institute Portion (20%):		1 hour
Tripping and control of impulse generators [Text Book 1:6.5] Or related advanced topics as decided by the concerned faculty teaching the subject.		
Module-2		12 hours
University Portion (80%):		10 hours
Electrical breakdown in gas solid and liquid		
Collision processes, Gaseous breakdown in uniform and non-uniform fields and corona. Ionisation process. Townsend's current growth equation. Townsend's criterion for breakdown. Determination of coefficients α and γ . Streamer's theory of breakdown in gases. Paschen's Law. Conduction and breakdown in pure and commercial liquid. Breakdown mechanism in solid and dielectric [Text Book 1:2.2, 2.3, 2.4, 2.6, 2.7, 2.10, 2.11, 2.12, 3.4]		
College/Institute Portion (20%):		2 hours
Post-Breakdown Phenomenon and Application, Testing of transformer oil [Text Book 1:2.13, 3.5]Or related advanced topics as decided by the concerned faculty teaching the subject.		
Module-3		12 hours
University Portion (80%):		10 hours
Study of over voltage in electrical power system and measurement of high voltage		
Causes of overvoltage and its effect on power system. Lightning and switching surges and temporary high voltage, protection against over voltage. Measurement of high voltage and high current. [Text Book 1:8.1,8.2]		
College/Institute Portion (20%):		2 hours
Digital technique in high voltage measurement. .Cathode-Ray Oscillographs for Impulse Voltage and current Measurement [Text Book 1:7.4]Or related advanced topics as decided by the concerned faculty teaching the subject.		
Module-4		8 hours
University Portion (80%):		7 hours
High voltage testing and insulation coordination		
High voltage testing of electrical apparatus [Insulator, Bushing, Isolator, Circuit breaker, Transformer, Surge Arrester, Cable] [Text Book 1:10.1, 10.2, 10.3, 10.4, 10.5]		
College/Institute Portion (20%):		1 hour
Radio Interference Measurement, Testing HVDC valves and equipment [Text Book 1:10.6, 10.7]Or related advanced topics as decided by the concerned faculty teaching the subject.		

Text Book

1. M.S Naidu and V. Kamaraju, 'High Voltage Engineering'. Tata McGraw Hill, 6th Edition 2015.

Reference Book

1. E. Kuffel and W. S Zaengel, ' High voltage engineering Fundamentals', Pergamon Press Oxford, London, 1986