

Course Content Phy-DSCT2:Electricity and Magnetism		Hrs
Unit – 1 (13 hours of teaching includes 3 hours of activities)		
Chapter No. 1	<b>Electric charge and field:</b> Coulomb's law, electric field strength, electric field lines, point charge in an electric field and electric dipole, work done by a charge (derivation of the expression for potential energy)	3
Chapter No. 2	<b>Gauss law:</b> Gauss's law and its applications - electric fields of a (i) spherical charge distribution, (ii) line charge and (iii) an infinite flat sheet of charge.	3
Chapter No. 3	<b>Electrostatic potential</b> Electric potential, line integral, gradient of a scalar function, relation between field and potential. Potential due to point charge and distribution of charges (Examples: potential associated with a spherical charge distribution, infinite line charge distribution, infinite plane sheet of charges). Constant potential surfaces, Potential due to a dipole and electric quadrupole.	7
Topics for self study	Concept of Voltage and Current Sources, Kirchhoff's Laws	
<b>Suggested Activities</b>		
Activity No. 1	(i) Learn the difference between and DC and AC electricity and their characteristics. (ii) Voltage and line frequency standards in different countries. (iii) A small project report on production of electricity as a source of energy: Different methods  Reference : Weblink/Youtube/Book	
Activity No. 2	(i) Learn to use a multimeter (analog and digital) to measure voltage, current and resistance. Continuity testing of a wire. (ii) Learn about household electrical connection terminals: Live, neutral and ground and voltage between the terminals. Role of earthing and safety measures  Reference : Weblink/Youtube/Book	