

# 24 Lecture - PHY101

## Important Subjective

**What is the relationship between the electric field and the electric potential?**

**Answer:** The electric field is the negative gradient of the electric potential.  $E = -\nabla V$ .

**What is an electric dipole?**

**Answer:** An electric dipole is a pair of opposite charges of equal magnitude separated by a distance  $d$ .

**Define electric flux.**

**Answer:** Electric flux is the number of electric field lines passing through a given surface.

**What is Gauss's law?**

**Answer:** Gauss's law relates the electric flux through a closed surface to the charge enclosed within the surface. It states that the electric flux through a closed surface is proportional to the charge enclosed within the surface.

**What is meant by the term electric potential energy?**

**Answer:** Electric potential energy is the energy associated with the position of a charged object in an electric field.

**Define capacitance.**

**Answer:** Capacitance is the ability of a system to store electrical charge.

**What is an electric field?**

**Answer:** An electric field is a region of space around a charged object in which a force would be exerted on other charged objects.

**What is an electric potential?**

**Answer:** Electric potential is the electric potential energy per unit charge.

**What is the formula for the electric field between two charged plates?**

**Answer:**  $E = V/d$ , where  $E$  is the electric field,  $V$  is the potential difference between the plates, and  $d$  is the distance between the plates.

**What is the difference between conductors and insulators?**

**Answer:** Conductors allow electricity to flow through them easily, while insulators do not. Conductors have free electrons that can move through the material, while insulators do not.