DAY 1 — Electrostatics Basics

1. Coulomb's Law:

$$F = k\frac{q_1 q_2}{r^2}$$

2. Superposition principle:

$$\vec{F} = \sum \vec{F_i}$$

3. Electric field:

$$\vec{E} = \frac{F}{q}$$

4. Properties of charge:
   • Quantized
   • Additive
   • Conserved
5. Conductors vs Insulators basics

DAY 2 — Electric Field Lines, Flux, Gauss Law

6. Electric flux:

$$\phi = \vec{E} \cdot \vec{A} = EA\cos\theta$$

7. Gauss Law:

$$\phi = \frac{q_{\text{enclosed}}}{\epsilon_0}$$

8. Field is zero inside a conductor (electrostatic equilibrium)
9. Field lines density $\propto$ E
10. Field lines never intersect