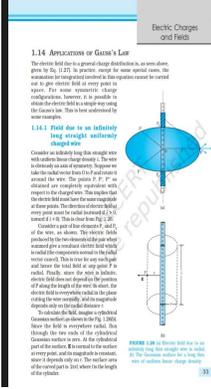
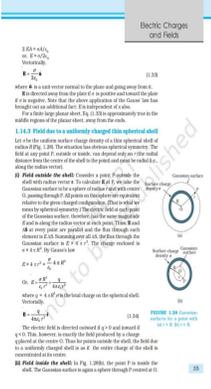
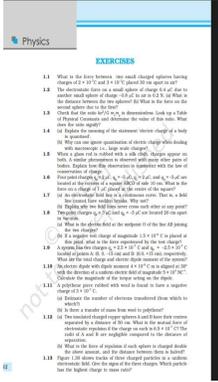
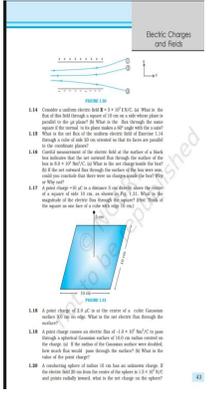


Teacher's name - Yasha Mishra
 Class - 12th
 Subject - Physics

S.N.	Date	Lesson name and topic	Classwork	Home work
1.	17/06/2025	01- Electric charges and fields	 <p>1.14 ATTRIBUTES OF GAUSS'S LAW</p> <p>The electric field due to a general charge distribution is, as we discuss in Sec. 1.12, in general, not an easy quantity to calculate. The situation is, however, greatly simplified in the special case of a uniform line charge. For some representative charge configurations, however, it is possible to obtain the electric field by using Gauss's law. This is done in the following sections.</p> <p>1.14.1 Field due to an infinitely long straight uniformly charged wire</p> <p>Consider an infinitely long straight wire with uniform linear charge density λ. The wire is shown in Fig. 1.14.1(a). To find the electric field at a point P in the plane perpendicular to the wire, we choose a Gaussian cylinder of length l and radius r, centered on the wire. The electric field E is uniform in magnitude and direction over the curved surface of the cylinder. The electric field is zero over the two flat end caps of the cylinder. The electric field E is perpendicular to the curved surface of the cylinder. The electric field E is perpendicular to the curved surface of the cylinder. The electric field E is perpendicular to the curved surface of the cylinder.</p> <p>FIGURE 1.14.1 (a) Electric field due to an infinitely long straight uniformly charged wire. The electric field E is perpendicular to the curved surface of the cylinder.</p>	<p>1. Explain all the imp points of gauss law. 2. For Ncert example 1.11, 1.12 Find total flux and net charge. Do all the calculations properly and correctly.</p>
2.	18/06/2025	01-Electric charges and fields	 <p>1.14.2 Field due to an infinitely long straight uniformly charged wire</p> <p>Let us find the electric field due to an infinitely long straight uniformly charged wire with linear charge density λ. We choose a Gaussian cylinder of length l and radius r, centered on the wire. The electric field E is uniform in magnitude and direction over the curved surface of the cylinder. The electric field is zero over the two flat end caps of the cylinder. The electric field E is perpendicular to the curved surface of the cylinder. The electric field E is perpendicular to the curved surface of the cylinder.</p> <p>FIGURE 1.14.2 (a) Electric field due to an infinitely long straight uniformly charged wire. The electric field E is perpendicular to the curved surface of the cylinder.</p>	<p>1. an infinitely long +vely charged straight wire has a charge density. An electron is revolving in a circle with a constant speed v such that wire passes through the centre and is perpendicular to plane of circle find kinetic energy of electron. 2. draw a graph of kinetic energy as a function of charge density.</p>

3.	19/06/2025	01-electric charges and fields		Solve. Ncert example no.1 to no. 13 do all the calculations and solutions properly.
4.	20/06/2025	01-electric charges and fields		Solve Ncert example no. 14 to no. 23 do all the calculations and solutions properly.
5.	21/06/2025	No Class		

6.

23/06/2025

02-Electric potential and capacitance

Physics

FIGURE 2.2 Work done on a test charge q by the electrostatic field due to any given charge configuration is independent of the path, and depends only on its initial and final positions.

2.3 POTENTIAL DUE TO A POINT CHARGE

Consider a point charge Q at point O to be positive. We wish to calculate the work done by the test charge q in moving it from point A to point B along the path AB .

FIGURE 2.3 Work done in bringing a unit positive test charge from infinity to the point P , against the repulsive force of charge Q ($Q > 0$), is the potential at P due to the charge Q .

$$\Delta W = -\frac{Q}{4\pi\epsilon_0 r^2} \Delta r$$

The negative sign appears because the work done (W) by the external force F is to $r = r_1$ to $r = r_2$.

$$W = \int_{r_1}^{r_2} \frac{Q}{4\pi\epsilon_0 r^2} dr = \frac{Q}{4\pi\epsilon_0} \left[-\frac{1}{r} \right]_{r_1}^{r_2}$$

This, by definition is the potential $V(r) = \frac{Q}{4\pi\epsilon_0 r}$.

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