Within a capacitor, polarization occurs, quod est:

> Negative electrons get attracted to the negative plate (cathode), and positive ions get attracted to the positive plate (anode).

This presents the fundamental principle of polarization, constituteing essential doctrine thereof.

The formular C = ε0 · εr · A/d

Capacitance = Vacuum Constant· Dielectric Constant· Area / Plate Distance

Further deconstruction :

ε0

The properties of a vacuum,

$\varepsilon_0 = 8.854 \times 10 - 12 F/m$(farads per meter)

ε_0 (vacuum permittivity) defines the ability of a vacuum to support electric field lines.

εr

The dielectric constant -of which each material has its own specific value-.

Mineral Oil = $\varepsilon r \approx 2.2$ to 3.0

Mica = $\varepsilon r \approx 6.0$ to 8.0

Polyethylene = $\varepsilon r \approx 2.2$ to 2.4.

The value defines the support of electric field lines.

Area

This is $A = d \cdot l$

Whereas, d = plate distance, l = length,

Depending on the design, -i.e. interest of its C properties-, different values might be used.

Longer plate length = More Capacitance

Higher plate distance = Less Capacitance

Distance

Defines the distance between the anode and cathode - denoted d.

Formerly mentioned, a greater distance equals less capacitance, and vice versa.