Chapter 14

Inductive Transients
Ch 14 Inductive Transients

- **Capacitive circuit**
  - Transitional phase is based on **capacitor charging** and **discharging**
  - **Capacitor voltage** $V_C$ cannot change instantaneously and begins at zero and **exponentially increases to** $E$

- **Inductive circuit**
  - Transitional phase occurs as the **magnetic field builds and collapses**
  - **Inductor current** $I_L$ cannot change instantaneously and begins at zero and **exponentially increases to** $E/R$
\[ \tau = RC \]

\[ v_C = E \left(1 - e^{-t/RC}\right) \]

\[ \tau = L/R \]

\[ i_L = \left(\frac{E}{R}\right)\left(1 - e^{-t/(L/R)}\right) \]