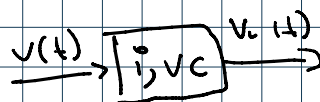


$$x = \begin{bmatrix} i(t) \\ v_c(t) \end{bmatrix}$$

$$y = v_c(t)$$



Ec. I/O

$$\sum V = 0$$

$$V - V_R - V_L - V_C = 0$$

$$V - R i(t) - L \frac{di}{dt} - V_C = 0$$

$$L \frac{di}{dt} + R i(t) + V_C = V$$

$$V_C = \frac{1}{C} \int i(t) dt$$

$$\frac{dV_C}{dt} = \frac{1}{C} i(t)$$

$$V_L = L \frac{di}{dt}$$

Variables de estado

$$x = \begin{bmatrix} i(t) \\ v_c(t) \end{bmatrix} \quad \dot{x} = \begin{bmatrix} \dot{i}(t) \\ \dot{v}_c(t) \end{bmatrix} \quad \dot{x} = \begin{bmatrix} \dot{i}(t) \\ \frac{1}{C} i(t) \end{bmatrix} \quad \dot{x}_1 = \frac{1}{L} (V - V_C - R i)$$

Variables de salida

$$y = \begin{bmatrix} 1 & 0 \end{bmatrix} \begin{bmatrix} i(t) \\ v_c(t) \end{bmatrix} + V$$