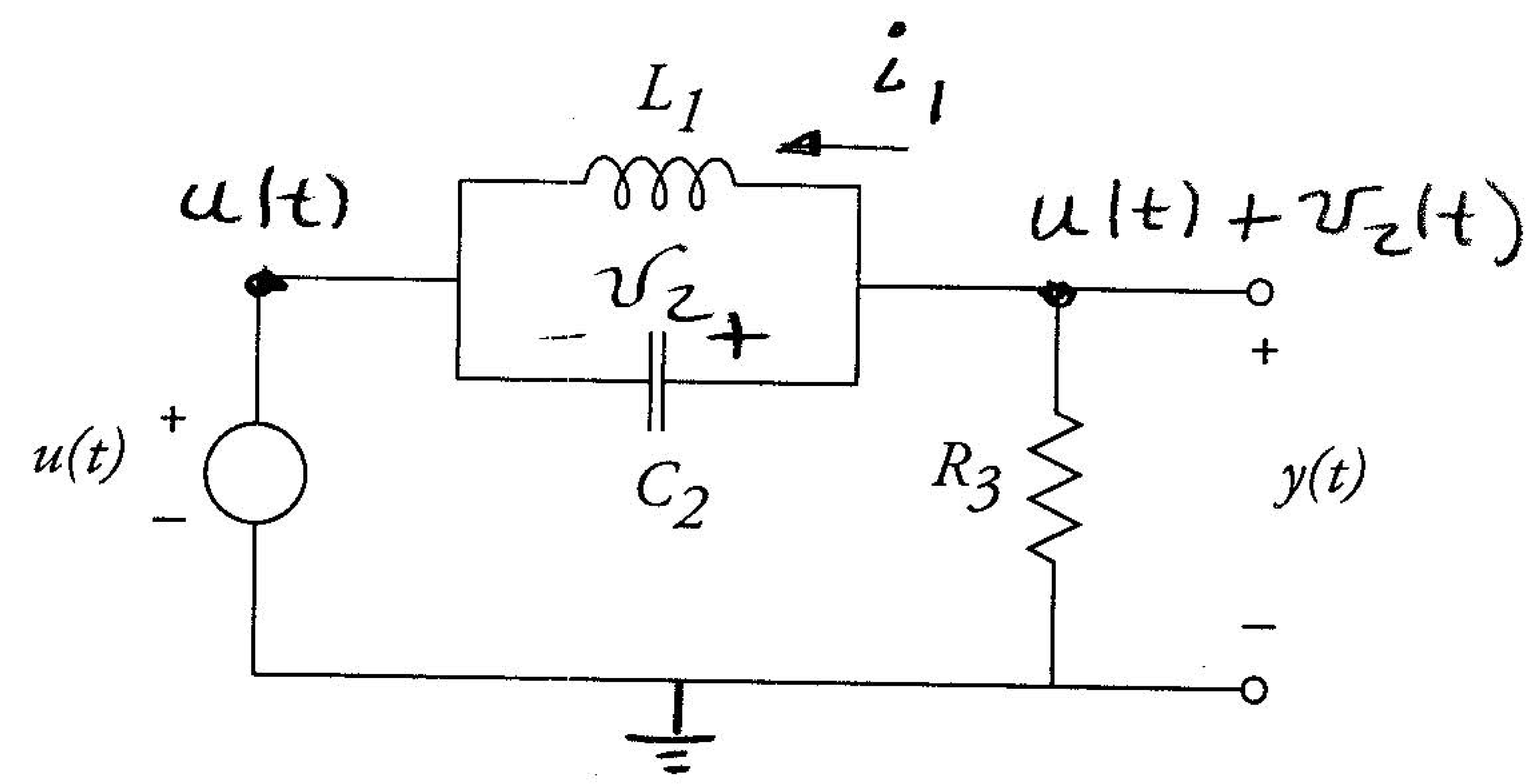
To solve the circuit, use the node method:



Note that there are no unknown nodes, which simplifies things!

The states are

$$x_1 = i_1$$
$$x_2 = v_2$$

To find $\dot{x}_1 = di_1/dt$, need v_1:

$$\dot{x}_1 = \frac{di_1}{dt} = \frac{1}{L} v_1(t)$$
$$= \frac{1}{L} \underbrace{\left[(u + v_2) - u \right]}_{\text{potential across } L}$$
$$= \frac{1}{L} v_2$$

To find $\dot{x}_2 = dv_2/dt$, need i_2. To find i_2, apply KCL at $u+v_2$ node:

$$\frac{u + v_2 - 0}{R} + i_1 + i_2 = 0$$

Therefore,

$$i_2 = -i_1 - \frac{1}{R} v_2 - \frac{1}{R} u$$

and

$$\dot{x}_2 = \frac{dv_2}{dt} = \frac{1}{C} i_2$$

$$= -\frac{1}{C} i_1 - \frac{1}{RC} v_2 - \frac{1}{RC} u$$

Therefore, the state equation is given by

$$\dot{\underline{x}} = \underbrace{\begin{bmatrix} 0 & 1/L \\ -1/C & -1/RC \end{bmatrix}}_{A} \underline{x} + \underbrace{\begin{bmatrix} 0 \\ -1/RC \end{bmatrix}}_{B} u$$

To find the measurement equation, note that

$$y(t) = v_2 + u = x_2 + u$$

Therefore,

$$y = \underbrace{\begin{bmatrix} 0 & 1 \end{bmatrix}}_{C} \underline{x} + \underbrace{\begin{bmatrix} 1 \end{bmatrix}}_{D} u$$

N.B.:

There are other possible labellings for v_2 and i_1. If you used a different labelling, some of the signs may be different

In particular,

1) If v_2 labelled opposite mine,

$$C = \begin{bmatrix} 0 & -1 \end{bmatrix}$$

$$B = \begin{bmatrix} 0 \\ +1/RC \end{bmatrix}$$

2) If v_2 or i_1 labelled opposite mine (but not both),

$$A = \begin{bmatrix} 0 & -1/L \\ 1/C & -1/RC \end{bmatrix}$$

3) If both v_2 and i_1 labelled opposite mine, A remains the same.