

CENG 215 Circuits and Electronics

LAB #6 Feuille

Place: PC Lab

Aim

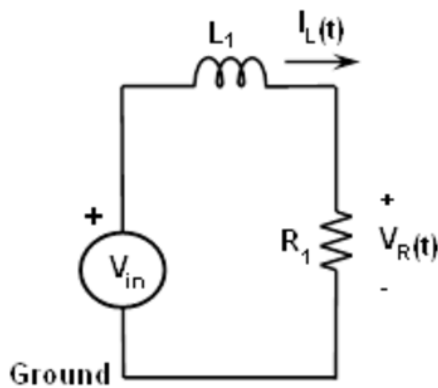
To analyze first order circuits by simulations in Python and to compare the analysis results with the theoretical analysis results and also PySpice results.

Materials/Devices:

Python, PySpice

Work to be done:

Write a Python code to simulate the circuit below:



$$R_1 = 2 \text{ k}\Omega$$

$$L_1 = 5 \text{ }\mu\text{H}$$

1. Let your code perform the following functions:
 - a. Plot $I_L(t)$ and $V_R(t)$ for two different $V_{in}(t)$ functions:
 - i. $V_{in}(t) = 5 u(t)$. volts
 - ii. $V_{in}(t) = 3 \sin 0.8t$ volts
 - b. Calculate and print the time constant of the circuit.
 - c. Calculate $V_R(t)$ for $t=0.1$ sec and print it on the screen.
2. Simulate the circuit with PySpice and compare the results.
3. Compare both results with your analytical solution.

Final Remarks

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