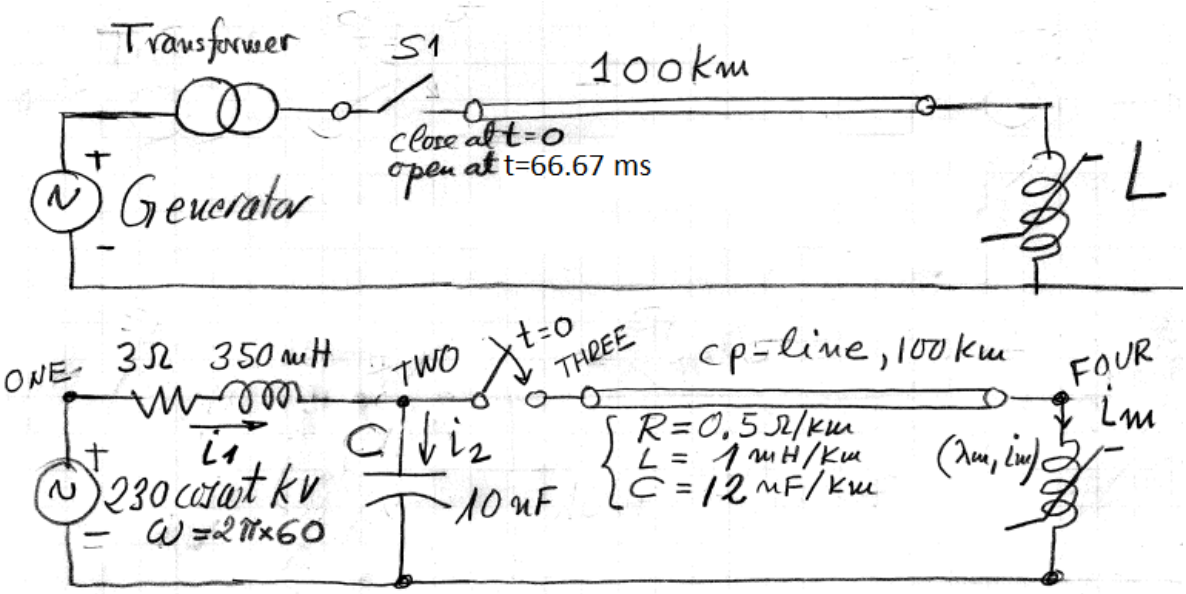
Dept. Electrical and Computer Engineering
The University of British Columbia
EECE560 Network Analysis and Simulation January 2021
Instructor: Dr. J. R. Martí

ASSIGNMENT No. 8

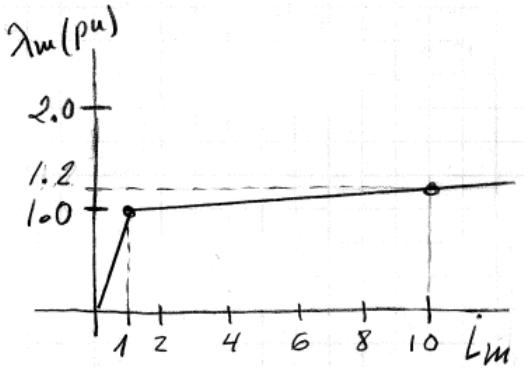
Due Date: 12 April

Non-Linear Elements

The transmission line in Assignment No. 3 is now terminated in a nonlinear inductance. Adapt the program you wrote for that Assignment to the present case.



The nonlinear characteristic of the L is approximated with two line segments as follows



λ_m (pu)	i_m (pu)
1.0	1.0
1.2	10.0

$\lambda_{Base} = 100$ [volt.sec]

$i_{mBase} = 5$ A

1. Use the simple two-slope model shown. Assume zero initial conditions for both your program and PSCAD.

2. The breaker closes at $t = 0$. Simulate the circuit from $t = 0$ to $t = 200$ ms.

3. Plot $v(one)$, $v(two)$, $v(three)$ on the same graph for your program and for PSCAD.
4. Plot $i(four, ground)$ on the same graph for your program and for PSCAD.
5. Plot $v(two, three)$ on the same graph for your program and for PSCAD.
6. Make comments comparing your results with those of PSCAD.
7. Make comments comparing your results with those of Assignment No. 3.
8. General comments.