

**CECS 211 - LAB 9**  
**Series RL Circuits in AC**

NAME:

POSSIBLE POINTS: 10

STUDENT ID:

COURSE DATE & TIME:

DIRECTIONS:

Using LTSpice, Simulate the a Series RL Circuit with:

10v 60hz AC Voltage Source

100ohm Resistor

1 H Inductor

For the AC Voltage Source use a normal voltage source and change the properties to Sine with 0 offset and 10v amplitude

When adding the Inductor, make sure to right-click on the component and change Series Resistance to 0.

Set up the simulation command to stop exactly after 5 cycles of the source AC voltage

In the waveform:

- Show the Total Applied voltage to the circuit
- Show the current through the inductor and the resistor (notice they are the same)
- Measure the Peak Current of the 5<sup>th</sup> cycle in the waveform

1) Measured Peak Current:

Hand Calculations:

2) Inductive Reactance  $X_L$ :

3) Total Circuit Impedance:

4) Current Magnitude:

Does the measured current match your calculated current?

Submit this page with the 5 questions answered and a screenshot of the simulation waveform.