

Prep guide – Inductance, inductors, and LC circuits

Big picture goal – To be able to walk all the way from first principles (Faraday's law) to a practical description of LC circuits.

1) In words, what is self-inductance? How is it defined mathematically?

2) Define back EMF, and write down a physical example of when one occurs.

3) Inductors are said to store energy. Where exactly is that energy stored, and where did it come from?

4) Describe qualitatively how a capacitor and inductor can combine to make an oscillator circuit. What happens if you drive that circuit with some AC voltage source?