

# Linear Circuits



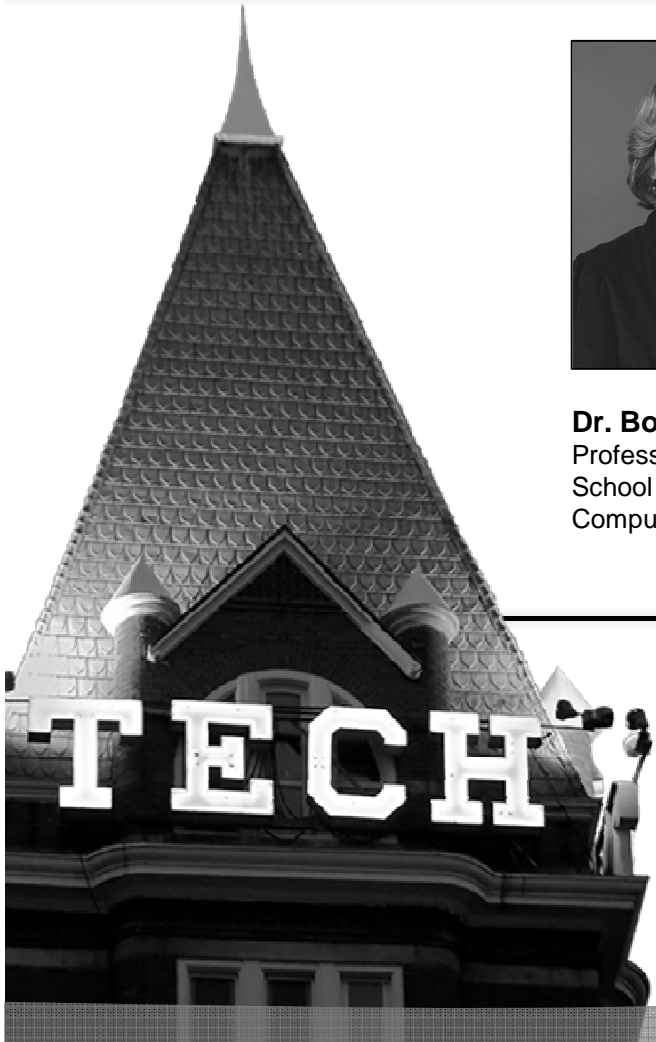
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*An introduction to electric circuit elements and a study of circuits containing such devices.*



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# Lab Demo: RLC Circuit Frequency Response

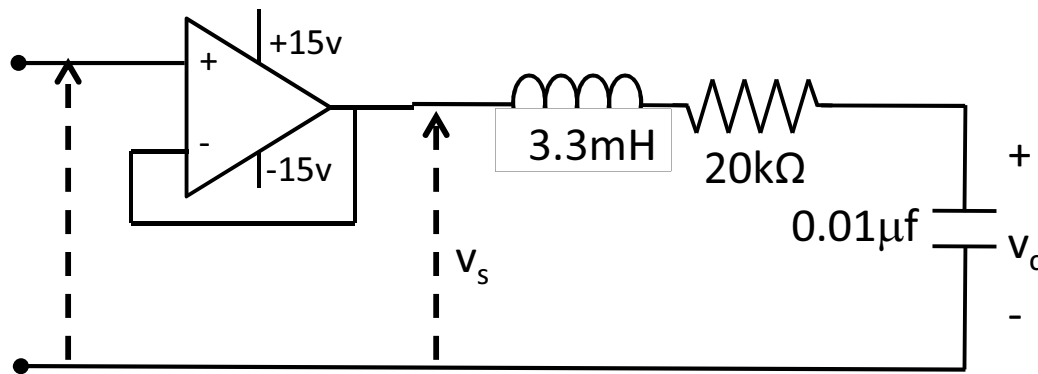


*Transient response of an RLC circuit*

## **Module 3: Reactive Circuits**

- ⦿ Sinusoids and Phasors
- ⦿ Impedance
- ⦿ Analysis of Sinusoidal Systems
- ⦿ Transfer Functions
- ⦿ Frequency Spectrum
- ⦿ Frequency Response
- ⦿ Filtering

# RLC Circuit Schematic



# **Lab Demo: RLC Circuit Frequency Response**

# Summary

- ◎ Low R means low damping and high resonant peak
- ◎ The Bode plot is generated by a sine sweep
  - Input sinusoids of different frequencies and calculate the gain ( $A_o/A_i$ ) and phase for each response
  - Compute and plot  $20 \cdot \log_{10}(A_o/A_i)$  vs  $f$
  - Plot phase vs  $f$

# Next Lesson

- © Introduction to filtering