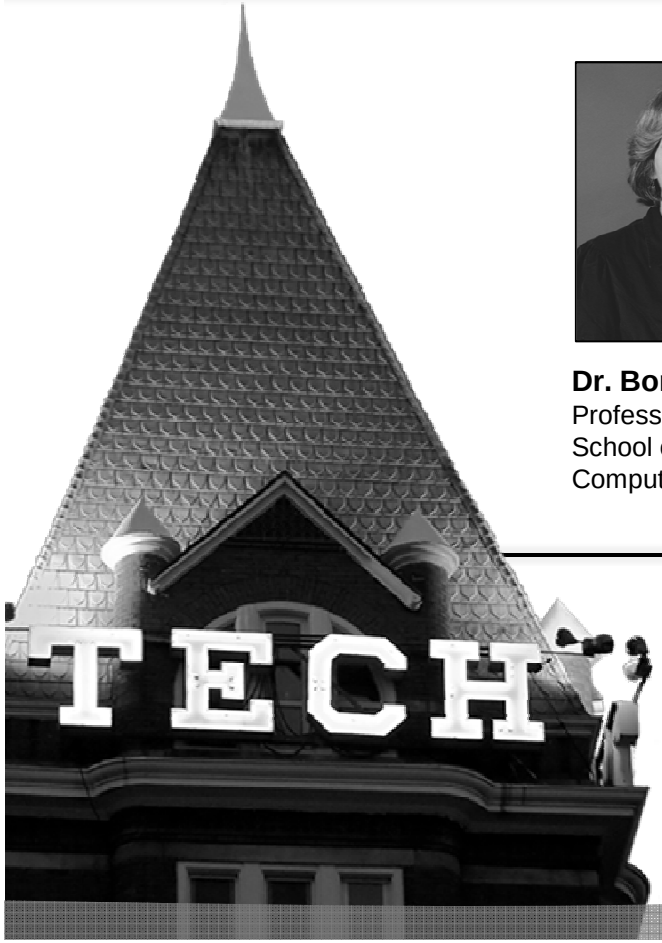
Georgia Institute of Technology



Linear Circuits

Dr. Bonnie H. Ferri
Professor and Associate Chair
School of Electrical and
Computer Engineering

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

Lecturers

Dr. Bonnie H. Ferri
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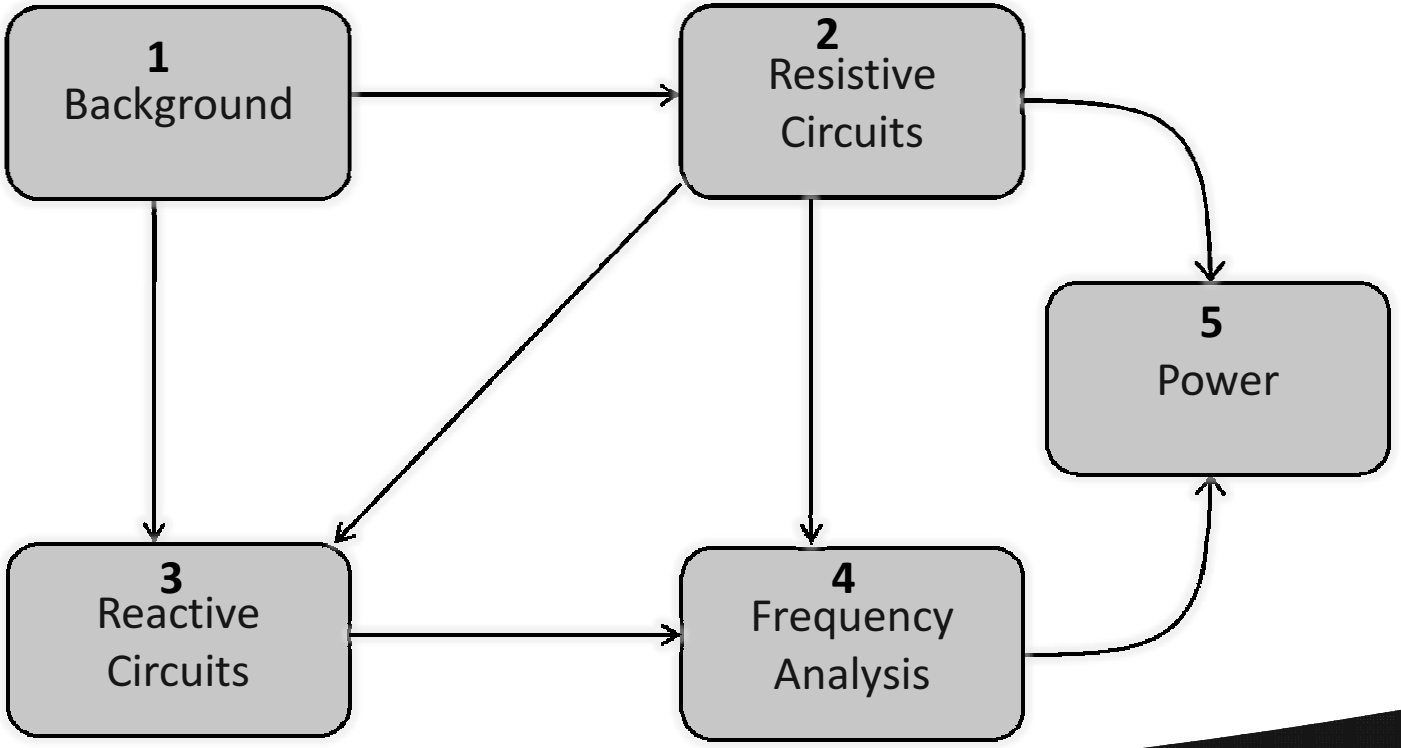
Overview

- **LINEAR CIRCUITS:** analysis of circuits including resistors, capacitors, and inductors with DC and AC sources in the time domain and in the frequency domain
- **TARGET AUDIENCE:** people with a scientific/technical background who are not electrical or computer engineers
- **BACKGROUND PREPARATION:** first course in calculus, matrices and linear algebra, complex numbers, introduction to circuit elements

Learning Outcomes

- Be able to determine voltages and currents in a **resistive network** with single or multiple DC sources
- Be able to sketch the **transient response of RC and RLC circuits** to step changes in the source voltage
- Be able to use phasors to determine **steady-state responses to sinusoidal inputs**
- Be able to analyze the **frequency response of filters**
- Be able to analyze the **power** of reactive circuits

Concept Map


1
Background
2
Resistive
Circuits
5
Power
3
Reactive
Circuits
4
Frequency
Analysis

How People Learn

People learn by

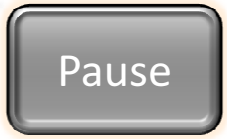
- **Making associations** to prior knowledge and experiences
- **Organizing facts** and concepts

People are motived to learn by

- **Setting objectives**
- **Testing** their knowledge

How to Succeed In Linear Circuits

- **MAKE ASSOCIATIONS**
  - concept map
  - practical problems and experience
- **TAKE NOTES**
  - Identify and organize important concepts and skills
- **TEST YOUR KNOWLEDGE**
  - Pause button
  - Quizzes after each lecture
  - Homework



Policies

- No direct email to instructional staff
- Send questions or comments to the forum
  - Only respectful, constructive comments are allowed
  - Answer questions on forum
- Georgia Tech course
  - Textbook
  - Labs and data acquisition board