Welcome to EE140!

Hello, world!

Today: Course Intro.

Course homepage: http://inst.eecs.berkeley.edu/courses/
Page 2

News group:
http://groups-beta.google.com/group/undergradclasses00

(4) Waitlist: Issue: Labspace!!
(1.) M 3-6 is moving
to W 5:30-8:30 pm
Tu 8:00 am
Wed - 11:00 am
Th
Max enrollment: Tu 5:30 - 8:30 pm
24
Linear vs. Nonlinear

**Midterm**

Linear: \( p \leq \epsilon \Rightarrow \phi \Rightarrow \text{DC} \Rightarrow \epsilon \text{DC} \)

Nonlinear: \( \uparrow \text{Diode} \Rightarrow \text{Transistor} \)

(HARD!)
Chapter 1 - Circuit Variables

is an interconnection of Circuit Elements.

is a model for a physical device.
Example:

\[ V_a - V_b = 12 \text{ V} \]
\[ V_b - V_a = -12 \text{ V} \]
Analog to ME, Potential Energy

\[ A.P.E. = mgh \]

\[ h > 0 \]
About 1

CW Read lab 1

(2) \( \frac{12}{5} A \times \frac{2}{5} \)

\[ = \]
Getting back to the battery

Circuit element: \( \oplus 12 \text{V} \)

\[ \text{Car 1} \quad \text{Car 2} \]

Mathematically, circuit theory deals with topology.

charging
Circuit Variables

Two Variables:
Current Voltage

"Black box"

denotes some 2-terminal circuit element
Circuit Variables (cont'd)

\[ V = f(I) \quad \text{or} \quad V = -f(I) \]
Circuit variables

Current is a flow of electrons

Ummm... not really true

Conventional flow

\[ V - i + R + v = \Omega iR \]

Electrons flow

Electron flow