



# EECS 42 – Introduction to Electronics for Computer Science

Fall 2001,  
Dept. EECS,  
UC Berkeley

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Tentative OH M, Tu, W, (Th), F 11

Course Web Site <http://www-inst.EECS.Berkeley.EDU/~ee42/>

Midterm Wed. Oct. 3<sup>rd</sup>,

Last name A-K in 2040 Valley LSB, L-Z in 10 Evans

Review Session #1: 1-2 PM Sat. Sept. 29 (TBA likely in Evans)

Review Session #2: 5-6:30 Tue. Oct 2, 2060 Valley LSB

## Topical Coverage First Midterm

Schwarz and Oldham Material followed by skills

### Chapter 0: all

Terminology: devices, circuits, systems  
Advantages of digital systems

### Chapter 1: all

Electrical quantities: charge, current, voltage power, energy  
Electrical circuit diagrams  
Kirchhoff current and voltage laws to analyze basis circuits.

### Chapter 2: all except 2.4 Loop Analysis, 2.6 and 2.7, light on 2.5

Independent Ideal Sources and simple circuit analysis  
Ideal resistors and resistors in series and parallel  
Node analysis of circuits with up to 8 branches  
Voltage and current dividers

### Chapter 3: all

Equivalent circuits: simplest is Thevenin and Norton  
Shortcut for finding  $R_{EQ}$  by turning sources to zero  
Nonlinear loads and load lines  
Power calculations

### Chapter 5: all light on 5.3 and very limited inductor circuits.

Ideal capacitors and inductors and their 8 properties  
Big ones: V continuous on capacitor, I continuous on inductor; energy

### Chapter 8.1: Only 8.1

EE 40/42 simple solution method  
use intuition about starting and ending values and time constant  
Application to switching and pulses  
KCL to get differential equation for capacitor voltage and inductor current

### Likely Exam Emphasis

**Basic circuit analysis with simple sources and resistors**

**Standard circuit analysis and equivalent circuits**

**Nonlinear load with a load line technique**

**Transient analysis**

**Nodal analysis of a sizeable circuit**