H.W. #11
10.18 & 10.19

Fri May 8th
" May 22nd
System Protection

Chapter 10th

I. Components

II. Design Criteria

III. Zones

IV. C.T.
Talked about faults (fault happen)

- stability
- safety
- liability
1. Protection Equipment
   1. Instrumentation
      CT, PT, V.T.
      5A, 115V
   2. Relays - brains
   3. Circuit breakers (CB)
   4. Energy Storage
Example: Over current, O.C.

- Single-phase line

- Relay
  - $I' > I_{\text{trip}}$
  - $\text{yes} \Rightarrow \text{close contact}$
  - $\text{no} \Rightarrow \text{open contact}$

- Open breaker

- Trip coil
Design Criteria

- Reliability - operate when a fault occurs.
- Selectivity - avoid false trips.
- Speed - operate rapidly.

\[ P = \frac{1}{y} + \frac{y}{E_P} \]
economy — max prod. 4

"simplicity -"
Zone of Protection

Join the bus line at the stop.
Char. of Zones

1) overlap

2) CB are located in the overlap region
x) all CB's in a zone open for a fault in the zone.
IV. Primary & Backup Protection

1) Duplication
   a) total
   b) Partial

2) remote backup.