# ELTN 115 Lecture 5.3: PCB Artwork for design



#### Historical methods...

Used tape on acetate – with light table







#### Extensive manual process



No. 19.24. Drawing a printed circuit. The drawing is carefully planned and executed for photographic reproduction on the circuit isoatti.

Note – in the audio I said this was from the 50's – more likely from the late 60's or 70's.



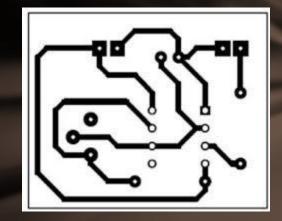
### Light tables used with 4:1 artwork





# Currently....

Laser photoplotters used to create artwork Positive and negative artwork called "photo tools" Use 1:1 artwork to expose sensitized copper with light or absence of light





# Single sided – print and etch

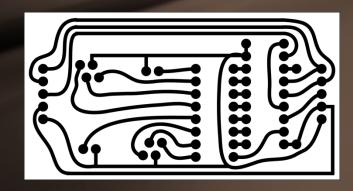
Simple process – only one side – alignment not critical

Etching done with Single exposure and

"pre-sensitized" board

Photo-resist applied to bare PCB material

UV exposure "hardens" material so it can be etched





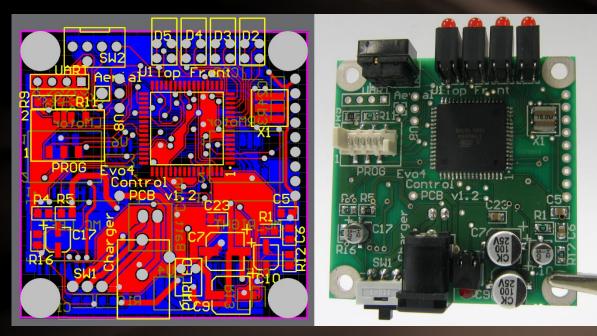
### Double sided PCB's

Much more difficult:

Alignment

Both sides exposed / processed

Hole locations critical





# Exposure / etching...

UV light used to harden

(polymerize) photo-resist

Creates a hard surface that protects copper

from etching

Etching – acid that attacks and dissolves

copper. Once etching is done, photo-resist

is removed – creating a basic PCB



