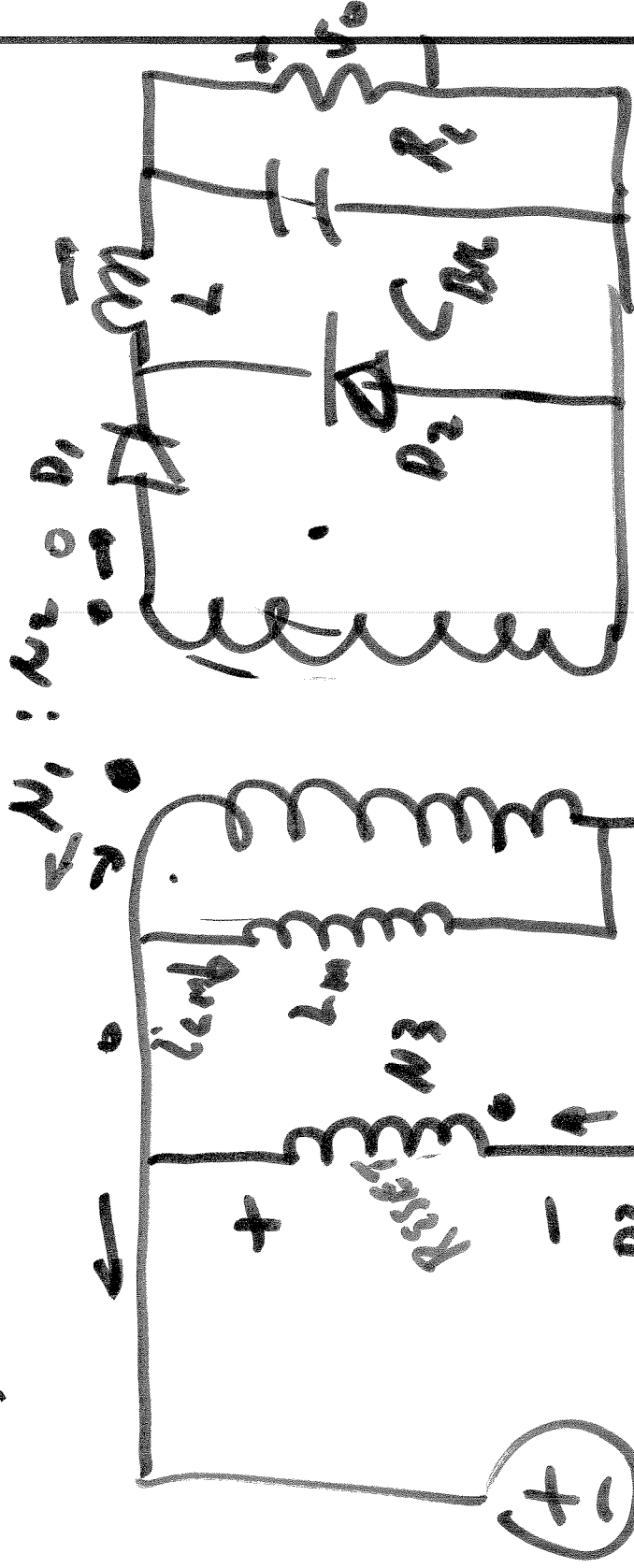


ECE 320 & ECE 329

ENERGY SYSTEMS I
BACKGROUND STUDY IN ENERGY SYSTEMS

SESSION no. 37



TRANSFORMER
"BUCK"

INITIAL SWITCH OPEN

ALL CURRENTS = 0

EXCEPT i_c, i_{R1}, i_L, i_{D2}

(ALL TRANSFORMER CURRENTS = 0)

TURN SWITCH ON

we get i_{LM} RISING.

we get current in D_1 AND
OUTPUT; CAP ALSO.

OUTPUT WHEN SWITCH CLOSURE.

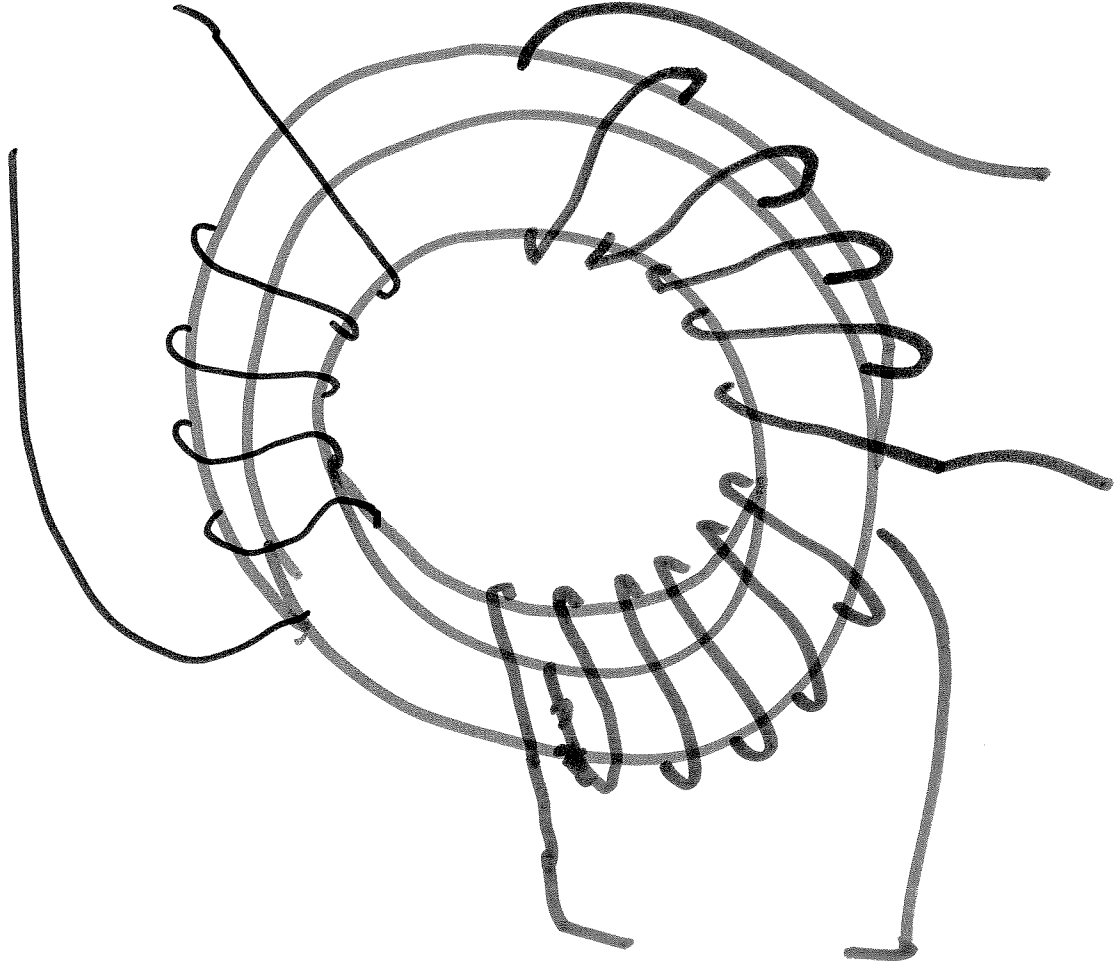
TURN SWITCH OFF

$i_{Lm} \rightarrow 0$ CHARGE IN L
 $p = V_a i_s$

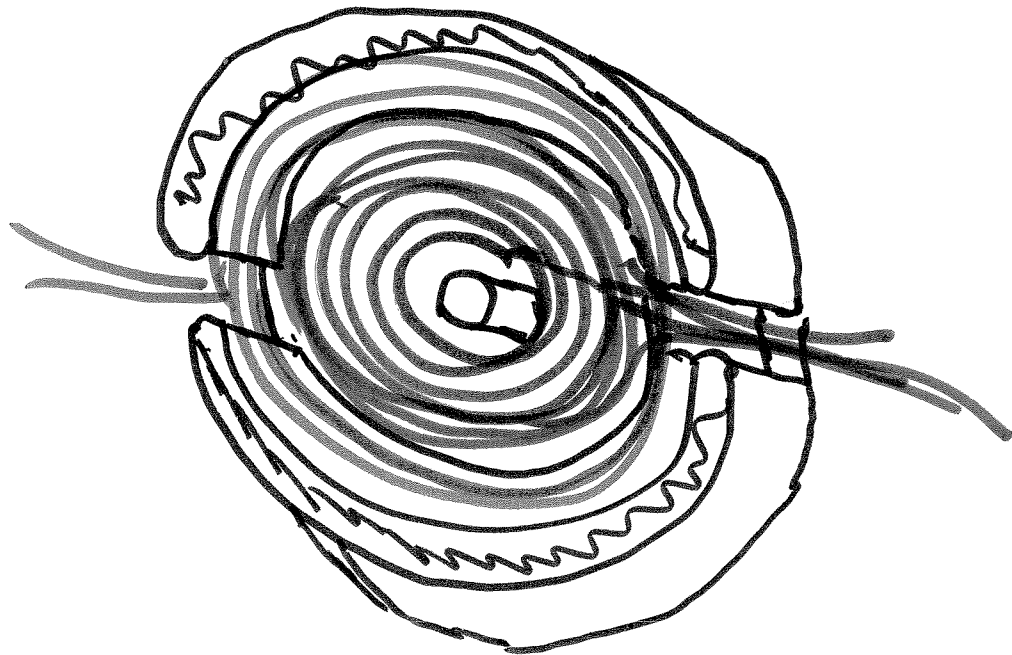
RESET THE TRANSFORMER
TO ZERO CURRENTS

$i_{Lm} = 0$
WAIT TO TURN ON
SWITCH AGAIN

cycle complete.



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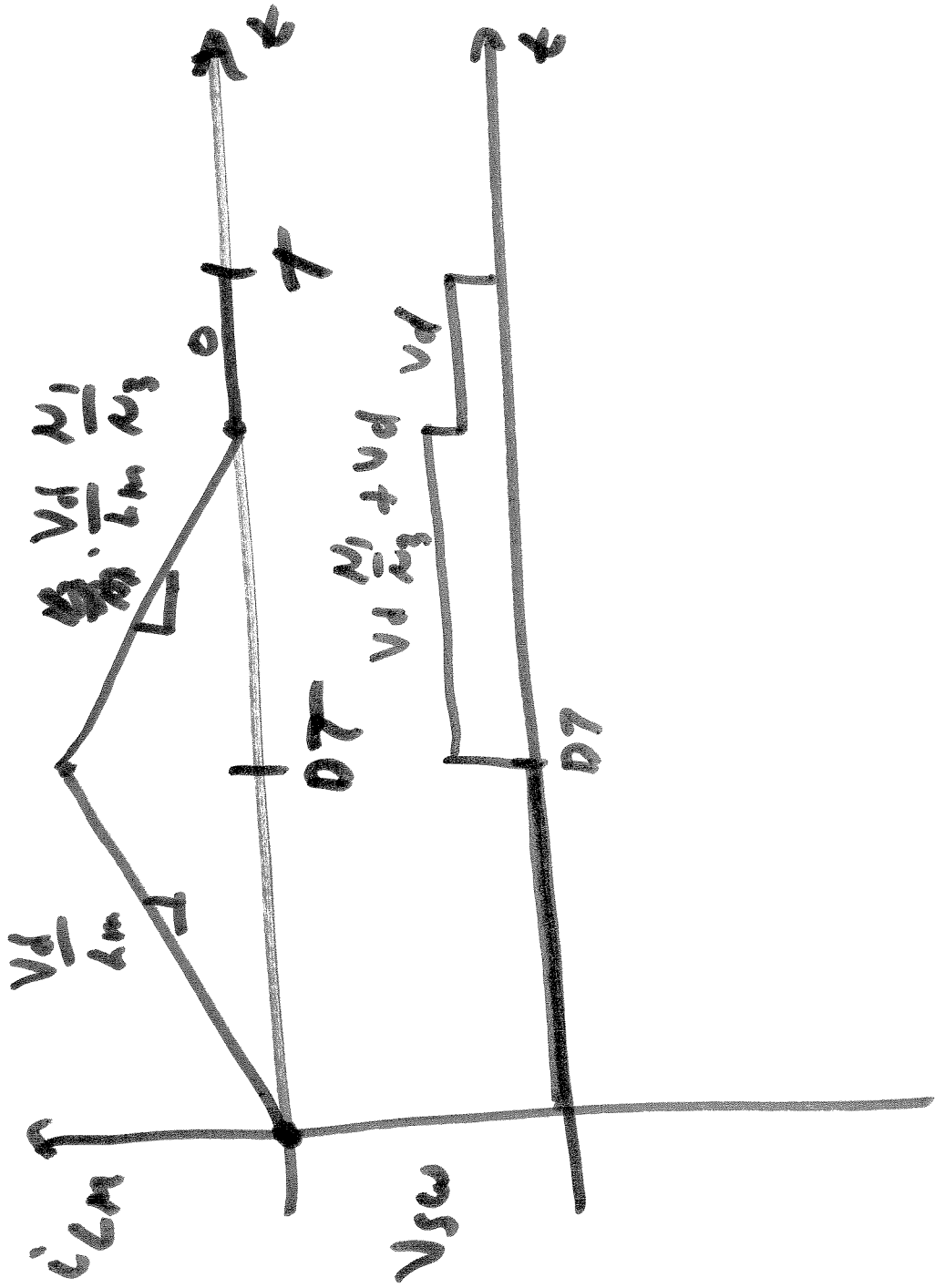
$$P = VC$$

$$\frac{V_o}{V_d} = \frac{N_2}{N_1} D$$

V_d

Buck

TRANSFORMER



ECE 320 / ECE 329

Energy Systems I

Lesson 37

Guest Experts: Flyback
Converter

Forward Converter

Two-switch (two winding)

forward converter

Push Pull Converter

Half Bridge

Full Bridge Converter