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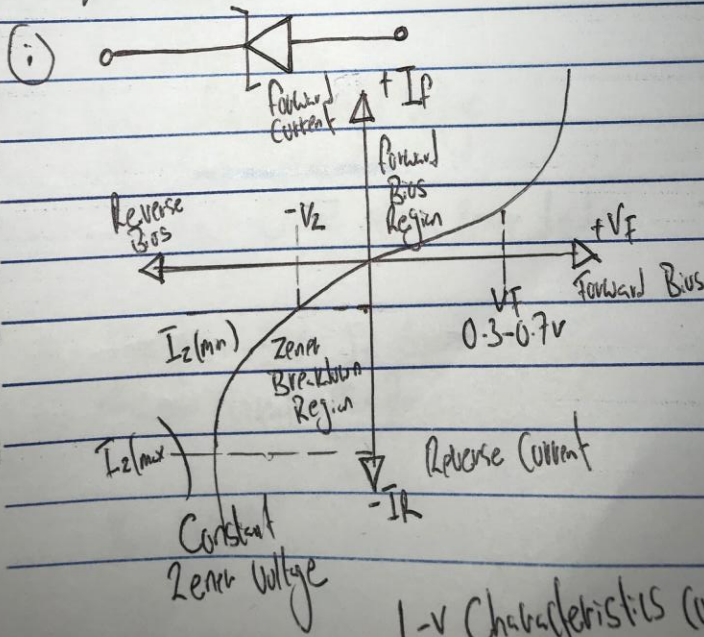
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DEPARTMENT: COMPUTER ENG

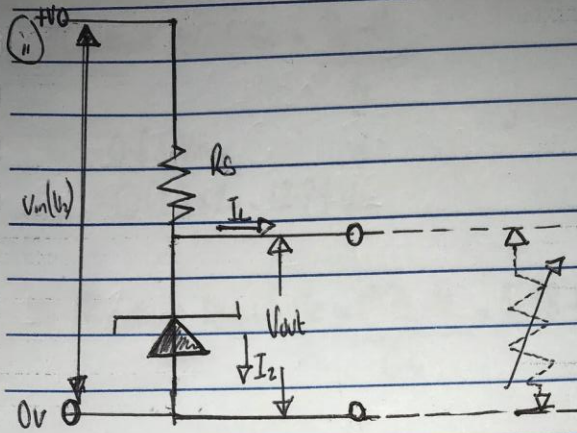
COURSE CODE: ENIG 222

### Assignment

1. A Zener diode is a diode similar to the standard PN junction diode but they are specially designed to have a low and specified Reverse Breakdown Voltage.



Thanks for Coming



Labels

$R_S$  - Resistor

$V_S$  - Voltage source

$V_{out}$  - stabilised output voltage

$R_L$  - Load Resistance

$I_Z$  - (or) Current across Zener diode

2.  $\text{Max Power} = 5W$   $I_Z = 500mA = 0.5A$ ,  $20V_m = V_s$

(i)  $\text{maximum Current} = \frac{\text{Max Power}}{\text{Voltage}} = \frac{5W}{V} = 0.5A$

$V_Z = 10 \text{ Volts}$

Thanks For Coming

$$\text{Minimum Resistance} = \frac{V_s - V_L}{I_L}$$

$$V_L = 0.637 V_{\text{max}}$$

$$= 0.637 \times 20 = 12.74 V_L$$

$$\therefore \text{Minimum Resistance} = \frac{12.74 - 10}{0.5} = 5.48 \Omega$$

$$(ii) \text{ Load Current } I_L = \frac{V_L}{R_L} = \frac{10}{500} = 0.02 \text{ A or } 20 \text{ mA}$$