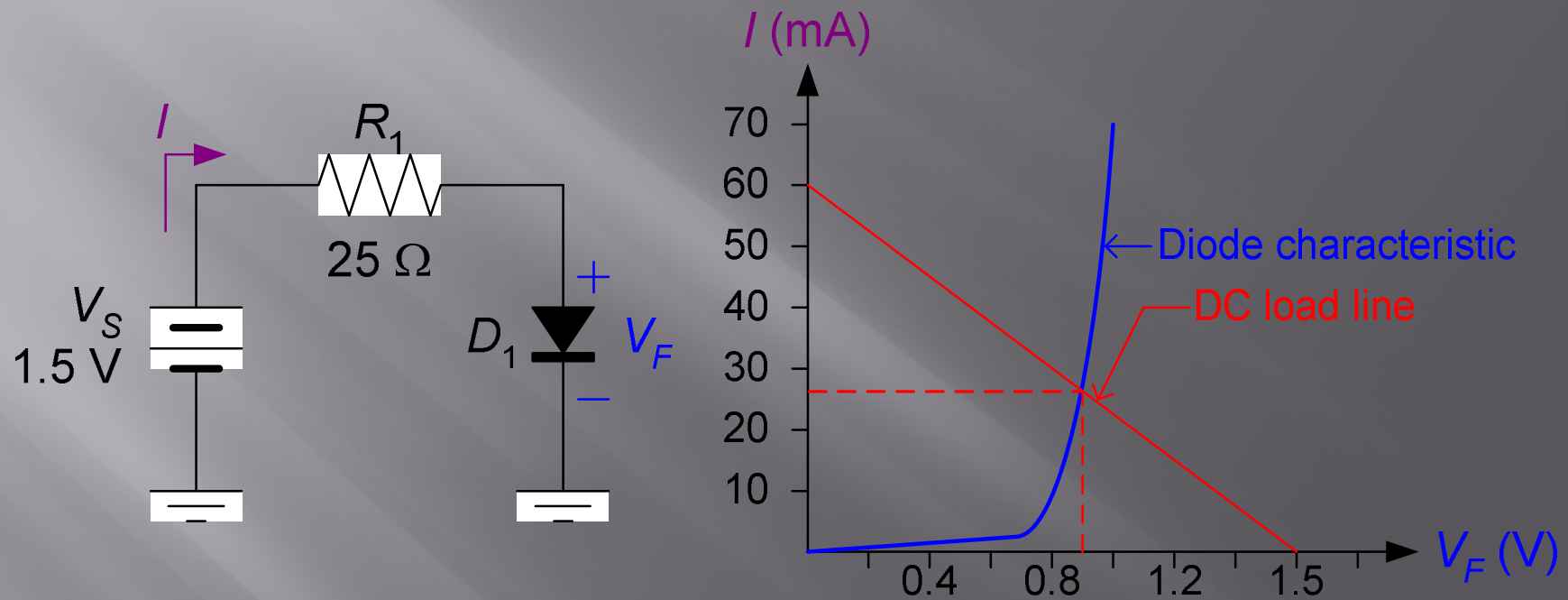




ANALOG ELECTRONICS

LECTURE NO. 3

DC Load Line



Load line eq.:

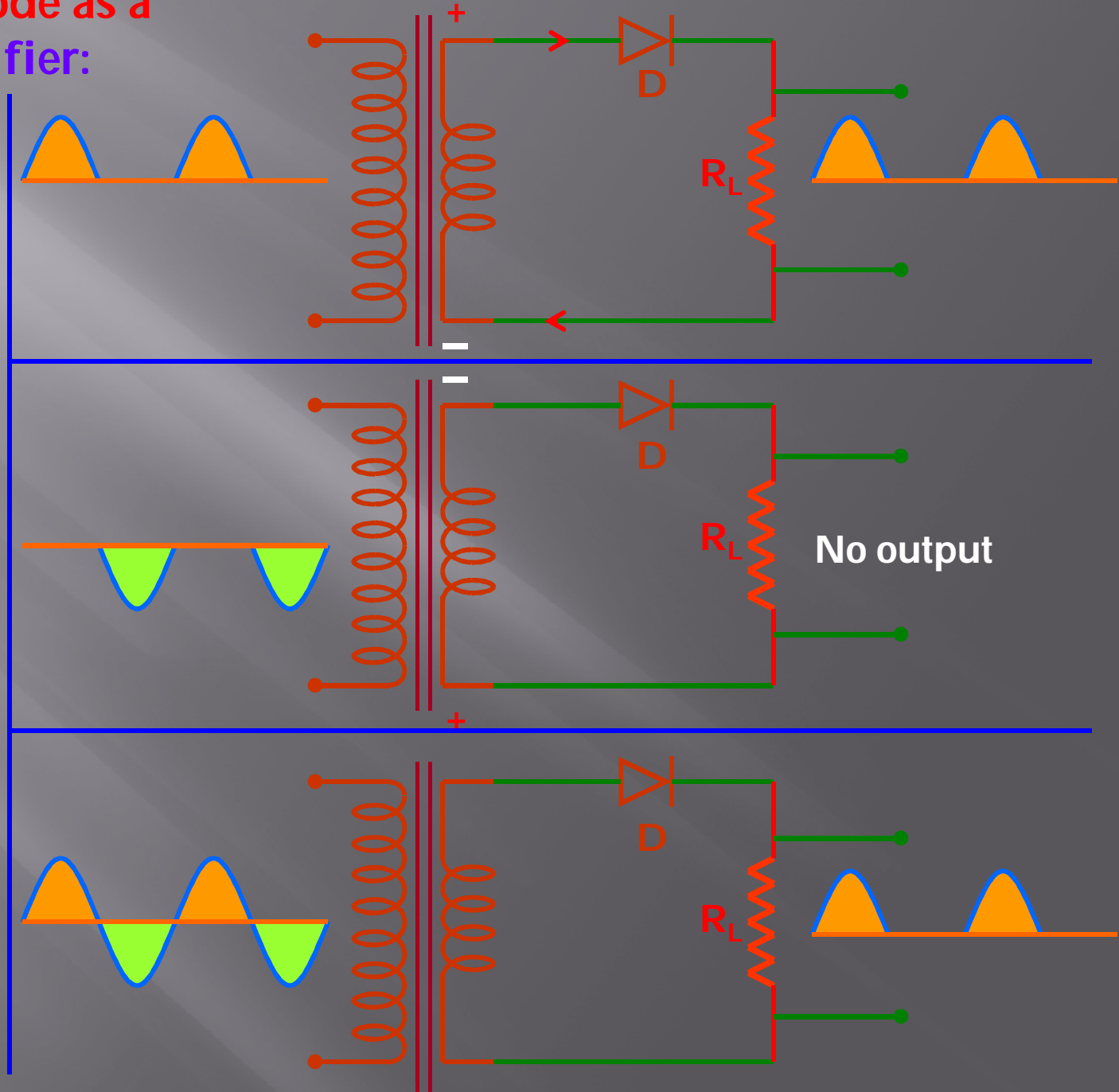
$$I = \frac{V_S - V_F}{R_1} = \frac{1.5\text{V} - V_F}{25\Omega}$$

PN Junction Diode as a Half Wave Rectifier:

The process of converting alternating current into direct current is called 'rectification'.

The device used for rectification is called 'rectifier'.

The PN junction diode offers low resistance in forward bias and high resistance in reverse bias.

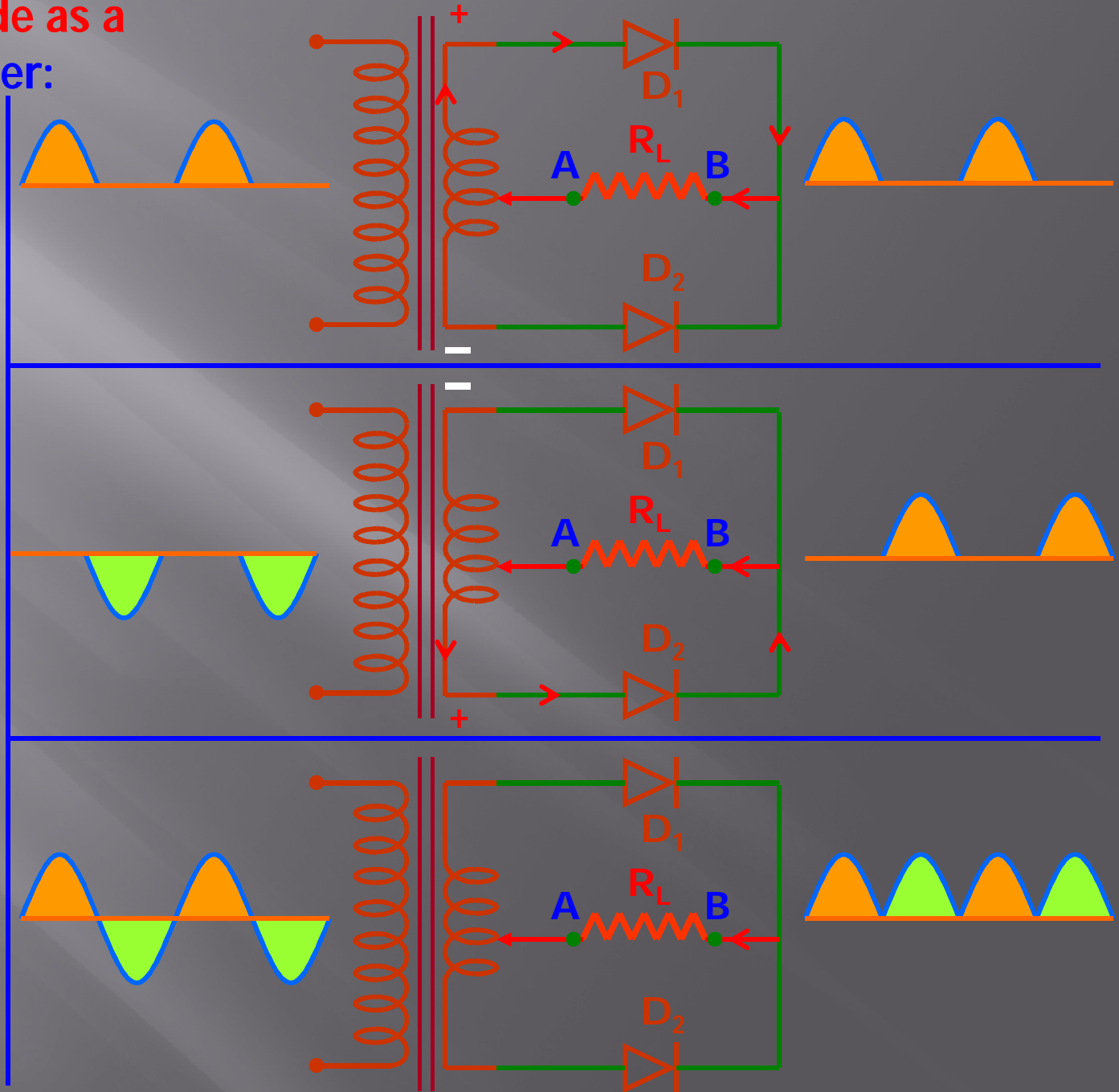


PN Junction Diode as a Full Wave Rectifier:

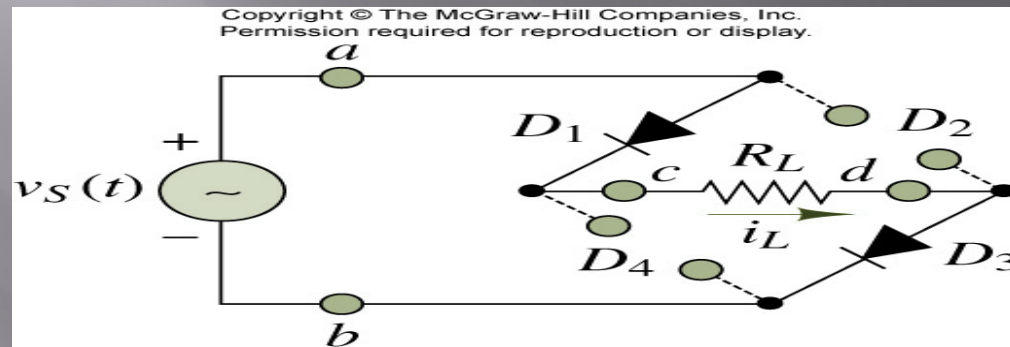
When the diode rectifies whole of the AC wave, it is called 'full wave rectifier'.

During the positive half cycle of the input ac signal, the diode D_1 conducts and current is through BA.

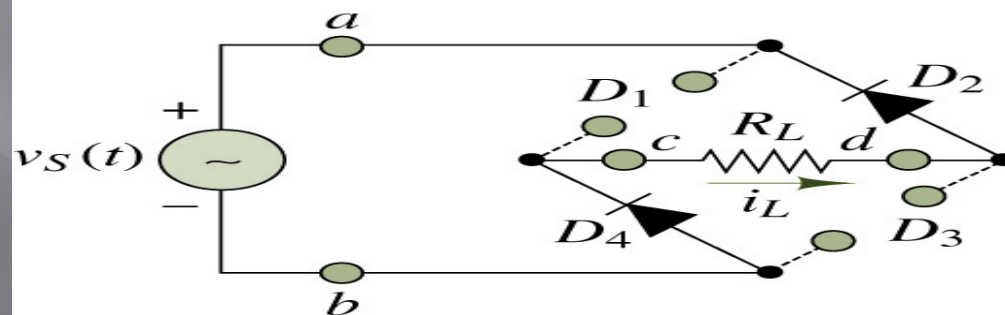
During the negative half cycle, the diode D_2 conducts and current is through BA.



BRIDGE RECTIFIER



During the positive half-cycle of $v_S(t)$, D_1 and D_3 are forward-biased and $i_L = v_S(t)/R_L$ (ideal diodes).



During the negative half-cycle of $v_S(t)$, D_2 and D_4 are forward-biased and $i_L = -v_S(t)/R_L$ (ideal diodes).