Northern University Of Bangladesh

Experiment No-2: Forward bias and reverse bias

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Section : A

Course Name : Electronic Engineering Lab
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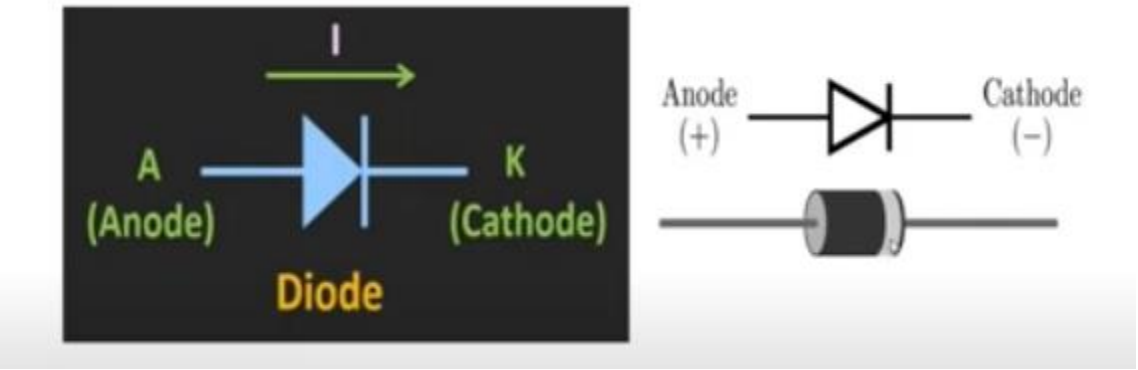
Diode:

Diodes are used to protect circuits by limiting the voltage and to also transform AC into DC. Semiconductors like silicon and germanium are used to make the most of the diodes.

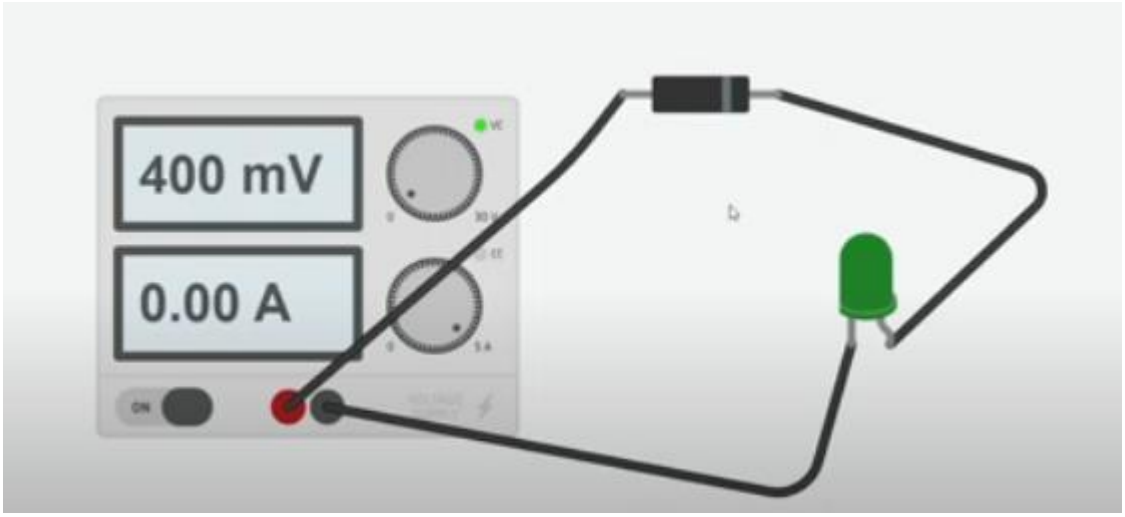


led:

A light-emitting diode (LED) is a semiconductor device that emits light when an electric current flows through it

Forward bias:

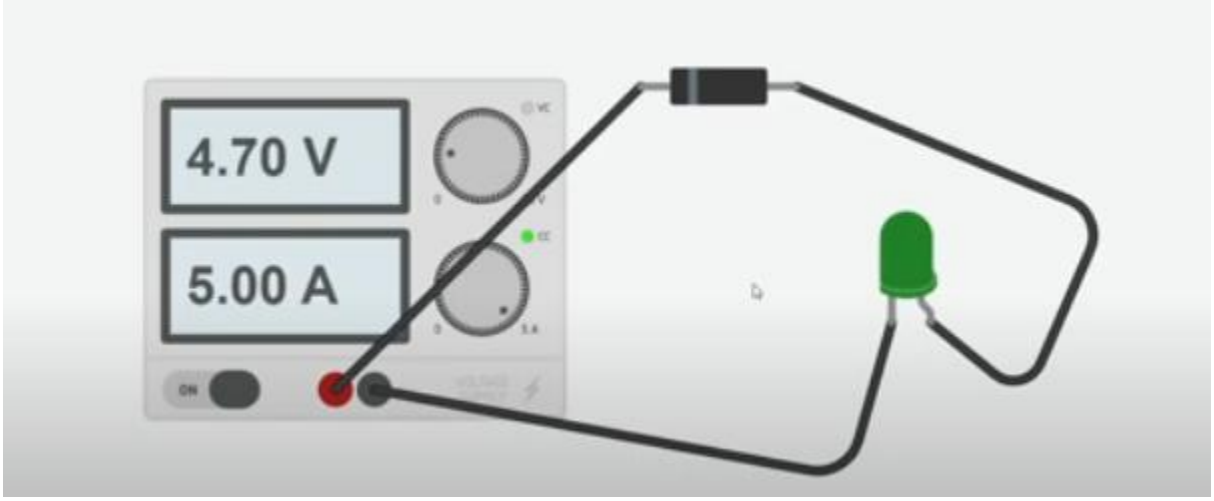
Forward bias or biasing is where the external voltage is delivered across the P-N junction diode. In a forward bias setup, the P-side of the diode is attached to the positive terminal, and N-side is fixed to the negative side of the battery.
We need minimum 0.7v to pass the current through the bias.



Reverse bias:

Diodes nominally conduct electricity in one direction, and the voltage they apply follows a so-called “forward bias” orientation. If the voltage moves in the opposite direction, we call that orientation a “reverse bias.”

In reverse bias, current flow is nominally blocked as a sort of electronic check valve. In reverse bias there will not flow any current

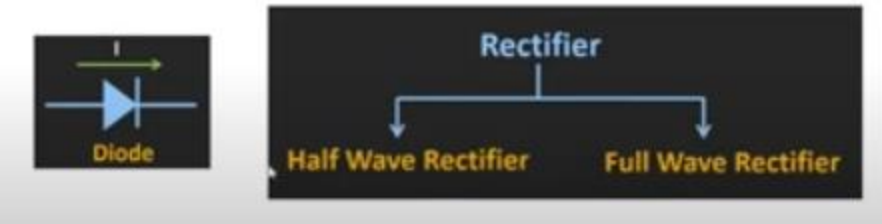


Rectifier:

A rectifier is an electrical component that converts alternating current (AC) to direct current (DC). A rectifier is analogous to a one-way valve that allows an electrical current to flow in only one direction

Two types of rectifier i) half wave

ii) full wave

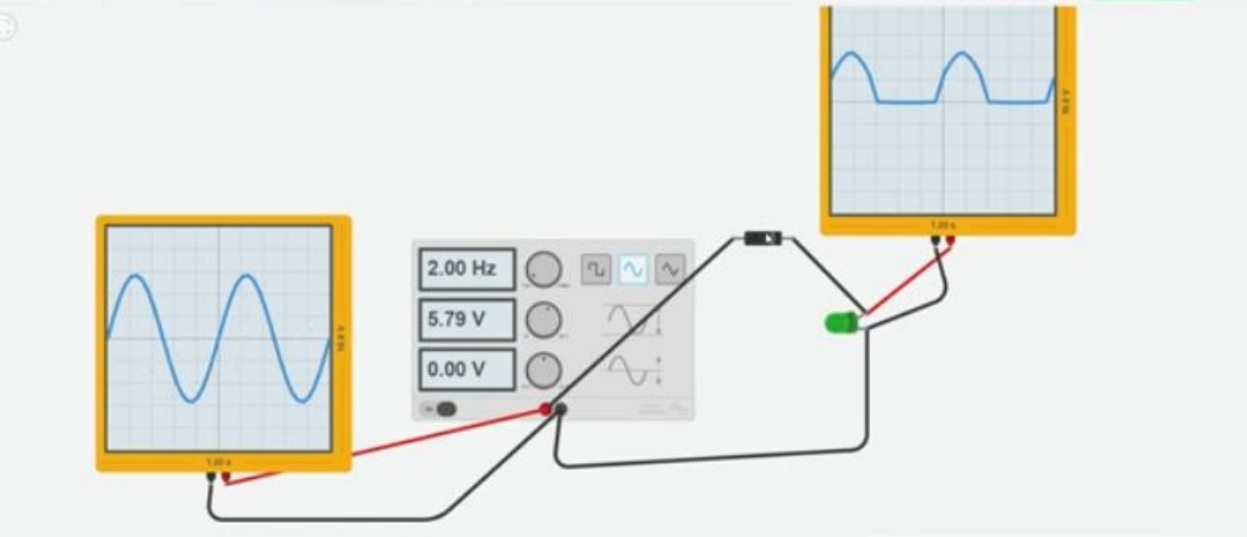


Half wave rectifier :

Half-wave rectifiers transform AC voltage to DC voltage. A halfwave rectifier circuit uses only one diode for the transformation. A halfwave rectifier is defined as a type of rectifier that allows only one-half cycle of an AC voltage waveform to pass while blocking the other half cycle.

In half wave rectifier there will pass only positive portion of a wave

Here 0.25s led will on and other time will off . in simulation ultimately led will blink. Because we will get only half of the signal



Here led is off. Because it is getting the negative side of the signal

Now if we want to get the whole signal that is given we need to reverse the diode.