

What is Optoelectronics?

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About Optoelectronics

- Optoelectronics is the study and application of light-emitting or light-detecting devices.
- It is widely considered a sub-discipline of photonics. Photonics refers to the study and application of the physical science of light.
- Optoelectronics is a fast-emerging technology field that consists of applying electronic devices to sourcing, detection, and control of light.
- It is largely based on semiconductor materials. These exhibit suitable bandgap energies for absorbing near-infrared and visible light, and their electric conductivity (albeit not perfect) is also essential for such applications.
- Examples of optoelectronic devices consist of:
 - Telecommunication laser
 - Optical fibre
 - Blue laser
 - LED traffic lights
 - Photodiodes
 - Solar cells
- These devices are used in a wide variety of application areas, such as military services, automatic access control systems, telecommunications, medical equipment, and more.

- Optoelectronics should not be confused with electro-optics, as this field is a wider branch of physics that deals with the interaction of electric fields and light, without concern if an electronic device is involved or not.
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Q1) What are Photodiodes?

It is a form of light sensor that converts light energy into electrical energy (voltage or current). Photodiode is a type of semi conducting device with PN junction. Between the p (positive) and n (negative) layers, an intrinsic layer is present. The photo diode accepts light energy as input to generate electric current.

Source: [New Laboratory of Advance Synthesis and Characterisation develops probe stations for universities to probe opto-electronic properties in range of materials](#)

Source: <https://vajiramandravi.com/current-affairs/optoelectronics/>

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