

# Electronic Devices

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## List of Topics

1. **Energy Bands in Intrinsic and Extrinsic Semiconductors.**
2. **Equilibrium Carrier Concentration**
3. **Direct and Indirect band-gap semiconductors**
4. **Carrier Transport**  
diffusion current drift, drift current, mobility and resistivity, generation and recombination of carriers, Poisson and continuity equations.
5. **Devices**  
P-N Junction, Zener Diode, BJT, MOS Capacitor, LED, Photo Diode and Solar Cell
6. **MOSFET**
7. **Semiconductor Fabrication**  
Overview of techniques used in manufacturing semiconductor devices.

## Video Tutorials/Lectures

1. ***Fundamentals of Semiconductor Device***  
This lecture series offers a complete guide to semiconductor devices, from fundamental concepts to advanced applications. [NPTEL: Prof. Digbijoy Nath, IISC Bangalore]
2. ***Introduction to Semiconductor Physics***  
This playlist consists of a comprehensive guide for semiconductor devices by John Luis Edmunds.

## Books

1. ***Microelectronic Circuits Theory and Applications***  
Adel S. Sedra. Provides the most comprehensive, flexible, accurate, and design-oriented treatment of electronic circuits available today.

**2. *Physics of Semiconductor Devices***

Simon M. Sze. An authoritative reference that covers all aspects of semiconductor physics and devices.

**3. *Solid State Electronic Devices***

Ben G. Streetman and Sanjay Banerjee. A well-established textbook on solid-state devices.