

Electronics and Modern Physics for Computers PHY 232

Lecture Note

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Lecture Overview

1. D.C. Circuits
2. Kirchhoff's Laws, sources of emf and current,
3. network analysis and circuit theorems.
4. A.C. Circuits. Inductance, capacitance, the transformer, sinusoidal wave-forms rms and peak values,
5. power, impedance and admittance series RLC circuit, Q factor, resonance,
6. filters.
7. Electronics; Thermionic emission; vacuum tube, thermionic devices; valves and the CRT
8. semiconductors, the pn-junction,
9. Bipolar Transistors and Field Effect Transistors
10. Characteristics and equivalent circuits,
11. Amplifiers,
12. Feedback and oscillators.
- 13. Exercises**



LESSON 7

filters

Filters

- Filters as the name suggests, they filter the frequency components. That means, they allow certain frequency components and / or reject some other frequency components.

- Types of Filters

Filters are mainly classified into **four types** based on the band of frequencies that are allowing and / or the band of frequencies that are rejecting. Following are the types of filters.

- Low Pass Filter
- High Pass Filter
- Band Pass Filter
- Band Stop Filter



Filters

- Low Pass Filter

Low pass filter as the name suggests, it allows (passes) only **low frequency** components. That means, it rejects (blocks) all other high frequency components.

- High Pass Filter

High pass filter as the name suggests, it allows (passes) only **high frequency** components. That means, it rejects (blocks) all low frequency components.



FILTERS

- Band Pass Filter

Band pass filter as the name suggests, it **allows** (passes) only **one band** of frequencies. In general, this frequency band lies in between low frequency range and high frequency range. That means, this filter rejects (blocks) both low and high frequency components.

- Band Stop Filter

Band stop filter as the name suggests, it rejects (blocks) only one band of frequencies. In general, this frequency band lies in between low frequency range and high frequency range. That means, this filter allows (passes) both low and high frequency components.