

Learning Resources

Wednesday, January 3, 2024 12:12

Michel van Beizen



<http://www.lectureonline.com/lectures/subject/ENGINEERING/28>

ELECTRICAL ENGINEERING 12 AC POWER

Instantaneous Power

Power consumed by a device $\Rightarrow P = IV$ ($P = I^2R$)

since both i and v are sinusoidal function of time

$$i(t) = I_{\text{Max}} \cos(\omega t + \theta_i) \quad v(t) = V_{\text{Max}} \cos(\omega t + \theta_v)$$

$$\text{since } \cos A \cos B = \frac{1}{2} [\cos(A-B) + \cos(A+B)]$$

$$p(t) = i(t)v(t) = I_{\text{Max}} \cos(\omega t + \theta_i) \cdot V_{\text{Max}} \cos(\omega t + \theta_v)$$

$$p(t) = \frac{1}{2} I_{\text{Max}} V_{\text{Max}} [\cos(\theta_i - \theta_v) + \cos(2\omega t + \theta_i - \theta_v)]$$

[Electrical Engineering: Ch 3: Circuit Analysis \(1 of 37\) Chapter Content](#)

Chapter 3: Circuit Analysis - Chapter Content

Nodal Analysis \Rightarrow Node voltage method

1) with **current** sources

2) with **voltage** sources

Mesh Analysis \Rightarrow Mesh current method

1) mesh analysis with **voltage** sources

2) mesh analysis with **current** sources

Nodal and Mesh Analysis by Inspection

Node vs Mesh Analysis

DC Transistor Circuits

The PhD engineer

<https://www.youtube.com/@ThePhDEngineer>

Coursera



<https://www.coursera.org/learn/linear-circuits-dcanalysis/home/welcome>

MITx Course



<https://learning.edx.org/course/course-v1:MITx+6.002.1x+2T2019/home>

GTuttle



<https://gtuttle.net/circuits/practice.htm>

ELECTROBOOM

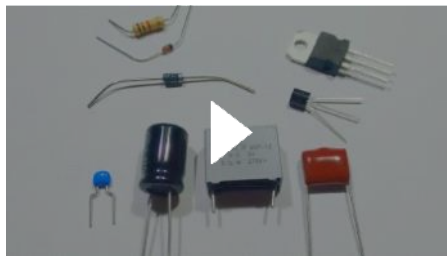
Playlist: Circuit Basics 101

[ElectroBOOM101](#)



Big Clive

[A simple guide to electronic components.](#)



Playlist: Fun Electronic Knowledge!

[Electronics](#)

