

# ENGR 202 : ELECTRICAL FUNDAMENTALS II

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## Transcript title

Electrical Fundamentals II

## Credits

4

## Grade mode

Standard letter grades

## Contact hours total

60

## Lecture hours

30

## Lab hours

30

## Recommended preparation

ENGR 201 and MTH 251/252.

## Description

Topics covered in this course include: AC and 2nd order transient analysis, sinusoids and phasors, sinusoidal steady-state analysis, nodal analysis, branch analysis, source transformations, Thevenin's and Norton's equivalent circuits, sinusoidal steady-state power calculation, and balanced three-phase circuits.

## Learning outcomes

- Be able to apply Kirchoff's Laws to successfully analyze an AC circuit with both independent and dependent sources. Be able to check your results for self consistency.
- Be able to apply Node-Voltage and Mesh-Current techniques to successfully analyze an AC circuit with both independent and dependent sources. Op amp and equivalent circuits are a natural extension of this understanding.
- Be able to use appropriate tools to describe power use in an AC circuit and distinguish between real and reactive power.
- Be able to determine line and phase currents and voltages for any balanced configuration of 3 phase power.
- Be able to predict the frequency dependent behavior of simple filter through the use of Bode plots. Demonstrate an understanding of the implications of the Bode plot for the actual behavior of the circuit