J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: EGR 272   Credits: 4

Course Title: Electric Circuits II

Course Description :

Covers sinusoidal steady-state circuit response using phasors; frequency analysis of linear circuits including frequency response, Bode plots, Fourier series analysis, and design of basic filters. Examines Laplace circuit analysis and transfer functions, AC power analysis; nonlinear diode models; and technical writing. Includes laboratory analysis and open-ended design project. Lecture 3 hours, Laboratory 3 hours, Total 6 hours per week. 4 credits

General Course Purpose
:
EGR 272 builds on time-domain knowledge and skills introduced in EGR 271 Electric Circuits I, and develops frequency-domain and transfer function understanding, including application to design work.

Course Prerequisites/Corequisites:

MTH 267 and EGR 271

Course Objectives:
Upon completing the course, the student will be able to:

AC analysis

        Represent circuits in the phasor domain, including impedance (review)
        Calculate the sinusoidal steady-state response of a linear circuit, including op amps, at a
        specified frequency using phasors
        Apply equivalent impedance, source transformation, superposition, node and mesh
        techniques, and Thevenin equivalent circuits for analysis and design

Frequency domain

        Illustrate the frequency response with Bode and phase plots
        Represent a periodic function as a Fourier series
        Apply the frequency response to periodic input signals
        Analyze and design first and second order passive and active filters

Laplace domain

        Determine Laplace and inverse Laplace transforms
        Represent circuits in the Laplace domain
        Analyze circuits using Laplace Transform techniques
        Determine and apply transfer functions

AC power