EGR 232: Electrical Engineering II

This course continues Electrical Engineering I (EGR 231). Topics include AC steady state power, three-phase circuits, complex frequency, network functions, frequency response, transformers, Fourier series, Laplace transforms, and Laplace transform application. Prerequisite: EGR 231 with a C or better; Co-requisite: EGR 234. Three lecture hours and one recitation hour per week. Instructional Support Fee applies.

Course Student Learning Outcomes

Students who successfully complete this course will be able to:

1. Describe the sinusoidal steady-state conditions through use of the concepts of phasor, impedance, admittance, and transfer function
2. Find the amplitude and phases of sinusoidal steady-state response waveforms by algebraic techniques
3. Analyze the flow of energy in AC circuits
4. Define power (P), reactive power (Q), and complex power(S)
5. Define the concept of frequency response curves and use Bode plots to them.
6. Understand the concepts of resonance, complex frequency, and poles and zeros in the development of frequency response
7. Understand and apply Fourier series in the analysis of circuits
8. Decompose input waveform into a sum of mutually orthogonal sinusoidal waveform components
9. Develop the limit of the Fourier series as the inverse Fourier transform and apply the direct Fourier transform of a signal in the transformation of time-domain

signals to its frequency-domain representation
Credits: 3
Program: Engineering