Texas A&M University–Corpus Christi
College of Science and Technology
Engineering Technology

Course Number and Title: ENTC 3415 Circuit Analysis II

Weekly Schedule: 3 hours lecture and 3 hours laboratory

Prerequisites: ENTC 2414 Circuit Analysis I

Course Description:
AC circuit analysis principles: AC generation, periodic functions, average and RMS measurements, complex numbers, phasors, impedance and admittance, methods of analysis, network theorems, power, frequency response, filters, transformers, and balanced three-phase systems.

Textbooks
1. Introductory Circuit Analysis, 9th Edition, Robert Boylestad, 2001, Prentice Hall

2. Experiments in Circuit Analysis, 8th Edition, Robert Boylestad and Gabriel Kousourou, 2001, Prentice Hall

Course Objectives
This course is designed to enable students to:
- Use Kirchhoff's Laws to analyze AC circuits.
- Use loop and nodal analysis techniques to analyze series-parallel AC networks.
- Apply the network theorems (superposition, Thevenin's, Norton's, etc.) to AC circuits.
- Use various electrical instruments such as function generators, oscilloscopes, etc.
- Use instruments to test series, parallel, and series-parallel AC circuits.
- Differentiate between low-pass, high-pass, stop-band, and high-pass filters.
- Sketch the Bode response of AC circuits.
- Analyze three-phase systems.
- Design simple transformer circuits.
- Design basic household electric wiring circuits.

Assessment

	Points		If	Grade
Quiz	5		90 ≤ Total < XX	A
Midterm 1	20		80 ≤ Total < 90	B
Midterm 2	20		70 ≤ Total < 80	C
Lab Exercises	20		60 ≤ total < 70	D
Homework	10		xx < Total < 60	F
Final	25			
Total	100			

Topics Covered
Introduction, AC waveforms, Phase measurements, Phasor representations, Series circuits, Parallel Circuits, Series & parallel AC networks, AC methods of Analysis, Network theorems AC power, Resonance, Filters, Frequency response, Three-phase systems, Transformers Household wiring circuits.

Laboratory Exercises/Experiments:
Lab 1 The oscilloscope
Lab 3 RLC Components
Lab 4 Frequency Response of RLC Components
Lab 5 Frequency Response of the series RL Network
Lab 6 Frequency Response of the series RC Network
Lab 7 The Oscilloscope and Phase Measurements
Lab 8 Series sinusoidal Circuits
Lab 9 Series-Parallel Sinusoidal Circuits
Lab 10 Thevenin Theorem and Maximum Power Transfer
Lab 11 Series Resonant Circuits
Lab 12 Passive filters
Lab 13 The Transformer

Prepared by: Hesham Shaalan **Date:** _____