Course Outline (EE-211 Electrical Network Analysis)

a.	Credit Hour	S	:	3 +1
b.	Text Book Circuits, 1 st		:	Fundamentals of Electric
		Editior	n,by Se	ergio Franco, Oxford English
		Press	Latest	Release.
С.	Reference E Analysis, 6 ^{tt}	Book ^h Editior	: า	Engineering Circuit
		By Ha	yt, Ken	nmerly and Durbin, McGrawHill

d. Course Objective:

The course focuses on the AC Response of ac circuits in the time domain and frequency domain. The phasor techniques and the concept of ac impedance to investigate ac power and ac resonance. The concept of phasors and Laplace transformation are introduced as a tool to solve the circuit equations. The course covers Network Function Techniques for the study of natural, forced, transient, steady-state and complete response. Bode Plots are covered in detail for the circuit response. Two port concept and network function techniques for the study of coupled coils. The course also covers the frequency response of a circuit through sinusoidal analysis.

e. **Topics:**

- (1) AC Circuit Analysis, Phasor Algebra, AC Impedance, Frequency Domain Analysis
- (2) AC steady state power, Concepts of average power, Complex power and power factor, 3 phase circuits
- (3) AC Resonance in Series and Parallel Circuits

- (4) Network Functions in s-domain, Natural Response, Complete Response and Frequency Response using $H(s)_{,}$ Direct transformation of circuits to s-domain, Asymptotic magnitude and phase Bode plots
- (5) Two Port Networks, and Coupled Coils, Two port parameters, Magnetically Coupled Coils, Ideal Transformer
- (6) Laplace transform and inverse Laplace transform Solving Circuit differential equations using Laplace transform, Laplace transform of special signals, Application to Circuit Analysis.

LAB: Three hours Lab work per week would be done in context with theory part of the course.