

Inver Hills Community College

ENGR 2042: Linear Circuits II

A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 3

Lab Hours/Week: 2

OJT Hours/Week: *.*

Prerequisites:

This course requires the following prerequisite

ENGR 2041 - Linear Circuits I (Minimum grade: 1.67 GPA Equivalent)

Corequisites: None

MnTC Goals: None

Continues analytical techniques for linear circuits. Topics include circuit analysis using phasors, single phase and three phase, AC power, delta and wye connected three phase circuits, transformers and magnetic coupling, series and parallel resonance, complex power and frequency, and two port networks such as transistors. Prerequisites: A grade of C or higher in ENGR 2041

B. COURSE EFFECTIVE DATES: 01/01/1998 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Steady State Power (10%)
2. Three Phase Circuits (15%)
3. Series and Parallel Resonance (15%)
4. Magnetically Coupled Circuits & Transformers (15%)
5. Two port networks and transistors (15%)
6. Applications of Laplace Transform (20%)
7. Applications of Fourier series and Fourier Transform (10%)

D. LEARNING OUTCOMES (General)

1. Demonstrate sinusoidal steady state analysis and general circuit analysis using phasors
2. Illustrate calculation of effective values of voltage and current and use of complex power in calculation of real and reactive power.
3. Evaluate voltage and power for balanced 3 phase circuits in wye and delta arrangements.
4. Solve problems related to voltage, current, and power calculations for magnetically coupled circuits such as transformers.
5. Identify frequency response for series and parallel circuits.
6. Use analytical/numerical methods for circuit analysis using complex frequency, the S plane, and transfer functions.
7. Evaluate voltage and current for 2 port networks such as transistors.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted