

Inver Hills Community College

ENGR 2041: Linear Circuits I

A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 3

Lab Hours/Week: 2

OJT Hours/Week: *.*

Prerequisites:

This course requires both of these prerequisites

MATH 1134 - Calculus II (Minimum grade: 2.0 GPA Equivalent)

PHYS 1082 - Calculus Based Physics II

Corequisites: None

MnTC Goals: None

Analyze circuits using Kirchhoff's laws and node-voltage and mesh-current methods, circuits containing op-amps, inductors, and capacitors, first- and second-order circuits, Thevenin circuits. Use measurement tools and equipment to perform experiments with circuits and electronics. Prerequisites: A grade of C or higher in MATH 1134 and PHYS 1082.

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

C. OUTLINE OF MAJOR CONTENT AREAS

1. Resistive circuits and Kirchhoff's Laws (10%)
2. Nodal and Mesh Analysis, Source Transformation, Superposition (15%)
3. Thevenin equivalent circuits(15%)
4. Circuit Simulation Software (10%)
5. Capacitance & inductance, RC RL & RLC circuits (25%)
6. Phasors & sinusoidal steady state analysis (15%)
7. Operational amplifiers (10%)

D. LEARNING OUTCOMES (General)

1. Analyze circuits using Kirchhoff's laws and node-voltage and mesh-current methods.
2. Analyze circuits containing op-amps, inductors, and capacitors
3. Analyze first- and second-order circuits.
4. Simplification of complex circuits to equivalent Thevenin circuits.
5. Use measurement tools and equipment to perform experiments with simple circuits and electronics.

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

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted