

# North Hennepin Community College

## ENGR 2501: Circuit Analysis I

### A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: \*.\*

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites:

This course requires any of these five prerequisite categories

1. MATH 1222 - Calculus II (Minimum grade: 1.67 GPA Equivalent)

Or

2. MATH 2010 - Probability and Statistics (Minimum grade: 1.67 GPA Equivalent)

Or

3. MATH 2220 - Calculus III (Minimum grade: 1.67 GPA Equivalent)

Or

4. MATH 2300 - Linear Algebra (Minimum grade: 1.67 GPA Equivalent)

Or

5. Both of these

MATH 2400 - Differential Equations (Minimum grade: 1.67 GPA Equivalent)

PHYS 1602 - General Physics II

Corequisites: None

MnTC Goals: None

This course is designed for people interested in electrical, civil and mechanical engineering, computer science and the Bachelor of Information Networking degree. The topics to be covered include: Kirchhoff's Laws, mesh analysis, nodal analysis, source transformations, superposition, Thevenin's and Norton's Theorems, operational amplifiers, first order response of RL and RC circuits, natural and step response of RLC circuits, sinusoidal steady-state analysis and power calculations and balanced three phase circuits. This is the first course in a two course sequence. (4 hours lecture) Prerequisite: Physics 1601 and Math 1222

**B. COURSE EFFECTIVE DATES:** 08/27/1997 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Academic Content: circuit variables, circuit elements, simple resistive circuits, techniques of circuit analysis, operational amplifiers, inductance, capacitance, mutual inductance, response of first-order RC and RL circuits, natural and step response of RLC circuits, sinusoidal steady-state analysis, sinusoidal steady state power calculations, balanced three-phase circuits.

### D. LEARNING OUTCOMES (General)

1. Course Outcomes: An understanding of the basic circuit principles and an ability to solve problems involving these principles

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

None

### F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

**G. SPECIAL INFORMATION**

None noted