

## NVCC COLLEGE-WIDE COURSE CONTENT SUMMARY

### ETR 113 - DC FUNDAMENTALS (4 CR.)

#### COURSE DESCRIPTION

Study of DC circuits, capacitors, magnetism and inductors. The concepts of equivalent circuits and network theorems as applied to DC circuit analysis. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

#### GENERAL COURSE PURPOSE

ETR 113 is designed as a one semester, lecture and laboratory course covering circuit fundamentals.

#### ENTRY LEVEL COMPETENCIES

Prerequisite or corequisite is MTH 166 – “Precalculus with Trigonometry”.

#### COURSE OBJECTIVES

As a result of the learning experiences provided in this course, the student should be able to:

- A. know the basic principles associated with DC circuits and circuit elements
- B. know the circuit properties of capacitance and inductance
- C. know the techniques and theorems of network analysis as applied to direct current circuits

#### MAJOR TOPICS TO BE INCLUDED

##### LECTURE

- A. Current & voltage
- B. Resistance
- C. Work & power
- D. Series & parallel resistances
- E. Network theorems and equivalent circuits
- F. Capacitance - magnetism - inductance

##### LABORATORY

- A. Laboratory equipment familiarization
- B. Resistor color code/ohmmeter
- C. OHM's law
- D. Series circuits
- E. Parallel circuits
- F. Series/Parallel circuits
- G. Voltmeter loading
- H. Superposition theorem
- I. Thevenin's theorem
- J. Wheat stone Bridge
- K. Voltage rise in a capacitor
- L. Soldering Techniques