FAMU-FSU
College of Engineering

Lecture #4:
Resistive Network Analysis

EEL 3003
Introduction to Electrical Engineering
Summer Semseter, 2013
Instructor: Dr. Michael Frank

Administrative Announcements

- Quiz #1 on Electric Circuit Fundamentals is Today!
  - ½ hour long
- Outline of Today's Lecture:
  1. Begin coverage of Chapter 3, Resistive Network Analysis
     - Solving Resistive Circuits w. Systems of Linear Equations
       - Node Voltage Method
       - Mesh Current Method
- Don't forget the current Homework Assignment:
  - Read Ch. 3 of Textbook (Rizzoni 5th ed.)
  - Practice exercises:
    - Attempt the following homework problems (randomly selected):
      - 3.6, 3.10, 3.17, 3.43, 3.60, 3.72, 3.74*, 3.75, 3.76, 3.81
        - Starred problems have solutions in the back of the book.
    - You may also want to attempt additional problems that have solutions printed in the back of the book.
  - The related quiz will be Thursday next week (May 30th).

§3.1 – Network Analysis

- Given a circuit with sources and resistors (however complex), we can say we have *solved* the circuit once all branch currents and node voltages have been determined.
  - This is called *Network Analysis*.
- First we'll cover two basic, systematic methods for network analysis:
  - §3.2 – The Node Voltage Method
  - §3.3 – The Mesh Current Method
- Each of these involves setting up and solving a system of linear equations.
  - We'll go through some small examples doable by hand.
  - More complex cases can be solved using Matlab.
    - Will post some notes on this.