Instructor: Dr. S. M. Loo  
Office: MEC 202E, Phone: (208) 426-5679, Email: smloo@boisestate.edu  
Office Hours: MW 1:30PM to 3:30PM or by appointment

Catalog Description:  

Required Texts:  
Text:  

Lab Manual:  

Class/Laboratory Schedule: Lecture/Discussion: 3 hours/week

Time and Place: (Sec. 001) MWF 9:40AM to 10:30AM at MEC 114, (Sec. 4006) MTu 6PM to 7:15PM

Course web page:  
http://coen.boisestate.edu/smloo/engr240fall2004

Topics:  
1. Basic Concepts (Chapter 1)  
2. Basic Laws (Chapter 2)  
3. Method of Analysis (Chapter 3)  
4. Circuit Theorems (Chapter 4)  
5. Operational Amplifiers (Chapter 5)  
6. Capacitors and Inductors (Chapter 6)  
7. First-Order Circuits (Chapter 7)  
8. Sinusoids and Phasors (Chapter 9)  
9. Sinusoidal Steady-State Analysis (Chapter 10)

Prerequisites:  
ENGR 120, MATH 170, MATH 175, MATH 333

Grading:  
50-Minute Exams (2 @ 20% each) 40%  
Final Exam 25%  
Quiz 15%  
Homework (includes PSpice Simulations) 20%

Grade determination: 100%-90% = A, 89%-80% = B, 79%-70% = C, 69%-60% = D, < 60% = F

Note and disclaimers:  
There will be rough spots. Question and comments are expected and encouraged.
**Homework:**
Homework will be assigned on Friday and due at the BEGINNING of the following Friday’s class. NO LATE homework will be accepted.

**Code of Conduct:**
Discussing the assignments with other students is encouraged, as this could be one way to understand the materials. However, the work submitted must be your own. Copying from any source (from someone else, old files, or solution manual) and turning it in is not permitted. Penalties for copying/cheating range from receiving a 0 on the assignment to receiving an F for the course.

*Student Code of Conduct, Article 3, Section 1, Academic Dishonesty*
Cheating or plagiarism in any form is unacceptable. The University functions to promote the cognitive and psychosocial development of all students. Therefore, all work submitted by a student must represent her/his own ideas, concepts, and current understanding. Academic dishonesty also includes submitting substantial portions of the same academic course work to more than one course for credit without prior permission of the instructor(s).

**Course Objectives:**
After taking this course, the students should be able:

- To solve and calculate node voltages and branch currents using basic network theory and circuit theorems (Ohm's law, Kirchhoff's current and voltage laws, superposition, series-parallel equivalents, wye-delta transformations, source transformations, Thevenin/Norton equivalents with or without dependent sources)
- To calculate power and energy in resistive circuits using the passive notation
- To simplify and solve resistive circuits using circuit reduction techniques (series combination, parallel combination, series-parallel combination, wye-delta and delta-wye transformations)
- To apply the voltage divider equations and current divider equations to solve simple electric circuits
- To solve an electric circuit using the superposition principle (with and without dependent sources)
- To formulate the nodal (or mesh) equations of an electric circuit and to solve for the node voltages (or mesh currents) by substitution or using Cramer's rule (with two or three linear equations in three unknowns) or PSpice
- To find the Thevenin (or Norton) equivalent (Thevenin voltage and resistance or Norton current and resistance) of a complex electric circuit (with or without dependent sources) as seen from a pair of terminals
- To compute the maximum power supplied from a source (Thevenin equivalent of several sources) to a variable resistive load
- To design simple resistive op-amp circuits
- To sketch the voltage waveform from the current waveform in a capacitor or inductor and vice versa
- To formulate the linear differential equations of first- and second-order circuits and to solve them subject to constant (DC) inputs
- To design simple op-amp integrators and differentiators
- To convert complex numbers from rectangular form to polar form and vice versa using Euler's identity
- To draw and solve phasor (AC) circuits using network theory and circuit theorems
- To compute the apparent, real, reactive, and complex powers absorbed by each element of a phasor (AC) circuit