HOWARD UNIVERSITY
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

EECE 202 NETWORK ANALYSIS I

Instructor: Dr. Charles Kim (202-806-4821, ckim@howard.edu, LKD #3121A)
Office Hours: TR 09:00 - 11:00 am and with appointed time.

Class Hours: TR 12:40 - 4:00 pm @LKD1002

Textbook: Electric Circuits by Nilsson and Reidel (any edition/version is OK. Currently 7th)

Pre- and Co-Requisite Requirement:
Pre-Requisite: Physics II (PHYS014)
Co-Requisites: EE Lab (EECE208) and Differential Equations (MATH159)

Goal: This course is designed to equip electrical engineering students with some of the basic tools for analyzing electrical circuits. Analytic techniques to be studied will include: Superposition, Mesh and Nodal analysis, transient responses, and operational amplifier.

Catalog Data: EECE 202: Network Analysis I: 3 Credits
Includes: Ohm's and Kirchoff's Law; V-I law's for RLC elements; Thevenin's and Norton's theorems; Delta-wye Transformation; operational amplifiers; and RLC Transient Responses.

Topics:

1 CIRCUIT VARIABLES: System of Units, Voltage, Current, Power and Energy
2 CIRCUIT ELEMENTS : Ohm's law, Kirchoff's law Independent and Dependent Sources
3 SIMPLE RESISTIVE CIRCUITS: Voltages and Current Division, Combination of Resistors, Delta-Y Conventions, Volt Meter and Ohmmeter circuits
4 TECHNIQUES OF CIRCUIT ANALYSIS: Mesh and Node Analysis, Thevenin and Norton equivalents, Source Transformation, Superposition and Maximum Power Transfer
5 OPERATIONAL AMPLIFIER: The Op-amp, Terminal Voltages and Currents, Inverting and Non-inverting Modes.
6 L, C, MUTUAL INDUCTANCE: The Inductor, the Capacitor, Combination of C's and L's.
7 RESPONSE I: First Order Responses of RL and RC Circuit
8 RESPONSE II: Second order Responses of RLC Circuit

Design Project: This course supports the emphasis on design of circuits. Design oriented problem, in a team project basis, will be given to students to focus the design aspects of the circuits. This project involves the analysis, simulation with PSPICE or MATLAB, and implementation of the circuit and testing.

Grading Policy:

Project	20%
Home works (3)	15 %
Exams (3)	45%
Final Exam	20%

Final Course Grade:

100 - 85	A
84 - 75	B
74 - 65	C
64 - 55	D
54 or below	F

General policy: Students must be actively involved in the learning of the material to be covered in this course. Homework will be assigned. Answers and outlines of solutions will be discussed in class.

Class note Web-Site: Students are expected to check the following class note web-site for materials covered or will be covered in the class: http://www.hirstbrook.com. Acrobat Reader® version 4.0 or above is needed to view and print the pdf files.

Safety/Ethics: Follow instructions carefully. Avoid handling live circuits and equipment. See "Safety Manual" in 3113 L.K. Downing and "Electrical Engineering Undergraduate Handbook."

Abet Category Content:

Engineering Science: 2.0
Engineering Design : 1.0

Program outcomes and assessment:

(a) An ability to apply knowledge of mathematics, science, and engineering

Demonstrated competence in course work undertaken to learn materials and concepts of basic electrical elements and electrical circuits as listed in the Course Objectives. *Tests and homework will demonstrate such competence. Minimum competence is defined to be 70% average on all tests and homework assigned during the semester.*

(k) An ability to use the techniques, skills and modern engineering tools necessary for engineering practice

Some of the homework exercises (project type) are based on PSPICE, Matlab, or other software tool competence as demonstrated by providing relevant simulation results in reports and homework. Minimum competence is a grade of C in the project types of homework

NOTE: ***If you want to be identified as a person with disability and accommodated under the Americans With Disabilities Act (ADA) of 1990, please make an appointment with the instructor.***