Department of Electrical and Computer Engineering
Howard University

Course Number	**Course Name**
EECE 208	**Introduction to Electrical Engineering Laboratory**

Catalog Data: ELEG 208. 1 Credit Hour. This course is designed to give sophomores in Electrical and Computer Engineering (and Non-ECE students in other disciplines) an opportunity to organize and setup experiments, observe and report the results in the subject of basic electrical (and electronic) circuits. PSpice simulation is also a topic of the course,

Textbook: ***Introduction to Electrical Engineering Laboratory Manual***, by Charles Kim, Howard University, 2005

References: Nilsson and Riedel, ***Electric Circuits***, 6th ed. Prentice-Hall. 2001

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Lab TA: TBA

Goals: To enable students to organize and setup experiments, observe responses, and report the results. Emphasis is placed on writing thorough reports, learning the proper use of basic electrical measurements and reinforcing basic networks and electronic concepts. Experiments involve: Kirchhoff's laws, Thevenin's equivalent circuit, superposition, oscilloscope basics, filters and frequency responses, operational amplifiers, and transient circuits.

Prerequisites: Physics II
Also Network Analysis I is the co-requisite for ECE Students

Topics:

Lab	Contents
0	Lab Equipment and Safety
1	DC Circuit I
2	DC Circuit II
3	Oscilloscope Basics
4	Oscilloscope II
5	Average and RMS and Decibels
6	Operational Amplifier Circuits
7	PSPice Simulation
8	RC and RL circuits
9	Transient RLC responses

Grading:	Pre-Lab Assignments:	20 points
	Lab Reports:	60 points
	Final Exam:	20 points

Lab Report/Project Work:

- The lab report and pre-labs must be submitted at the designated areas at the beginning of each lab period. Late pre-labs will not be accepted.
- The lab report should include the data sheet signed by the instructor.
- The lab report must contain the following:
  - Title page: Lab # and title, date, name and lab partner name
  - Introduction: Statement of objective and other pertinent information
  - Theory: A brief discussion of the relevant theory
  - Equipment List: Names of instruments, and other components
  - Method of Experimental Investigation: A brief but clear outline of the experiment
  - Data: Neatly tabulated data
  - Sample Calculations and Graphs
  - Discussion and Conclusion: Comparison of the results.

General policy:

- Students must be actively involved in the learning of the material to be covered in this course.
- Students are expected to be present in the lab on time and stay until the lab is completed
- Students are expected to complete a given lab within the assigned 3 hour period

Expected performance curve:

A	**Score ≥85**
B	**70≤ score ≤84**
C	**60≤ score ≤69**
D	**50≤ score ≤59**
F	**score ≤49**

Safety/Ethics: Safety and ethics are emphasized in this course. See "Safety Manual" (located in Advanced Electronics Lab,) and "Electrical Engineering Undergraduates" handbook.
Note: Under the Americans with Disabilities Act of 1990, if you want to be identified as a person with a disability and need accommodations, please advise me by making an appointment.

ABET Category Content:	Engineering Science:0.5
	Engineering Design. 0.5

Program outcomes and assessment:

An ability to apply knowledge of mathematics, science, and engineering
Demonstrated competence in course work undertaken to learn materials and concepts of basic electrical engineering in lab activity.

Final Exam and Lab Experiment Project will demonstrate such competence. Minimum competence is defined to be 70% average on exam, lab report, and project assigned during the semester.

An ability to design a system component, or process to meet desired needs
Experiment and Design project work - for students to perform experiments and analyze the experiment results. Also, for students to build their own designs by assembling circuits and components. Students must analyze the results of their designs in order to show proper functionality of circuit. *Minimum competence – working assembly of circuits and components as demonstration to instructor, grade of C on subsequent written design reports.*

An understanding of professional and ethical responsibility
Prior to or during laboratory experiments, students are required to understand that engineering is a learned vocation, demanding an individual with high standards of ethics and sound moral. *Minimum competence is a grade of C on laboratory participation.*

An ability to use the techniques, skills and modern engineering tools necessary for engineering practice
Lab and Lab Project- Lab experiments and lab project is to encourage students to use the state-of the art instrument and software tools which are very common in engineering fields. Competence as demonstrated by providing relevant results in reports and lab report of using PSpice or MatLab. *Minimum competence is a grade of C in both Lab report and project report.*