**EE20103: Basic Circuit Theory (회로이론)** Fall 2015

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***Teaching Assistants:***

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***Class Hours:*** Tue/Thu 9:00 – 10:15am

***Class Room:*** EB2 T101

***Text Book:*** Electrical Circuits, 10th ed., Nilsson and Riedel (Prentice Hall)

***Black Board:*** All class-related information including schedules of homeworks and exams will be posted on Black Board. Keep checking updates on BB.

***Course Description:***

This course has been designed to introduce fundamental principles of circuit theory commonly used in engineering research and science applications. Techniques and principles of electrical circuit analysis including basic concepts such as voltage, current, resistance, impedance, Ohm’s and Kirchoff’s law; basic electric circuit analysis techniques, resistive circuits, transient and steady-state response of RLC circuits; circuits with DC and sinusoidal sources, steady-state power and three-phase balanced systems.

***Course Schedule***

**Week**  **Contents**  **Chapter**

1 Introduction, Circuit variables 1

2 Circuit elements 2

3 Simple resistive circuits 3

4 Techniques of circuit analysis 4

5 Inductance, Capacitance, and mutual inductance 6

6 Response of first-order RL and RC circuits 7

7 Response of first-order RL and RC circuits 7

**8** **Midterm exam**

9 Natural and step responses of RLC circuits 8

10 Natural and step responses of RLC circuits 8

11 Sinusoidal steady-state analysis 9

12 Sinusoidal steady-state analysis 9

13 Sinusoidal steady-state power calculations 10

14 Sinusoidal steady-state power calculations 10

15 Introduction to frequency selective circuits 14

**16 Final exam**

***Grading:***

Class participation 10%

Homework 20%

Mid-term Exam 30%

Final Exam 40%

**Class Attendance:** Class attendance will be checked by offline, and will be used for grading class participation. Being late twice will be regarded as being absent once.

**Homework:** Submit homework after class on the due date. Late submission is not allowed and regarded as not submitted.

**Exams:** One midterm exam and one final exam (closed book)

**Honor Code Statement:** You are expected to do homework and exams by yourself, and any plagiarism is strictly prohibited and will be appropriately punished. When preparing homework you are allowed to discuss with other peer students, but all material submitted must be original.

**Notes on exam grading:** For exam problems, reasoning and analysis are typically as or more important than the final answer. You should explain your reasoning clearly and show all work. Be sure to erase or cross out any work you do not want to be considered in grading. If you demonstrate mastery of the key concepts required to solve a problem, you will receive substantial credit even if the final answer is not completely correct. Conversely, a correct final answer without explanation or justification will typically receive very limited credit.

**Policy on Collaboration:**

Discussion of course material and homework problems is permitted (and encouraged!). However, each student should work through the homework problems (and write up his or her solutions) independently. For additional details please see the section of this syllabus on Policy on Academic Integrity.