

## Circuit Theory

Course Name	Course type (credit/hours)	Required course(3/3)	Course code	C024
	Target students Division/major/grade	Electrical and Computer Engineering/Sophomore	Opening semester	2017 2ND SEMESTER
	Class time and classroom	Tue B(WH535)Thu A(WH535)	English Grade	A(100%English)
Reference to this course	Prerequisite courses	회로이론		
	Related basic courses	공학수학		
	Recommended concurrent courses			
	Related advanced courses			

Instructor	Name (title/division)		Ran Rong(Assistant Professor, Electrical and Computer Engineering)			
	Office Room Number	종합관 603호	Office phone Number	2375	e-mail	
	Office hours			Homepage address		
Teaching Assistant	Name (title/division)					
	Office Room Number		Office phone Number		e-mail	

### 1. Introduction

The electric circuits are part of the basic fabric of modern technology. This course introduces the fundamental knowledge of electric circuits, including circuit elements, resistive circuits and circuit theorems etc., and shows how to analyze and design electric circuits according to engineering problems.

#### Getting info About This Course

- The syllabus contains tentative information.
- I will announce in class if there is any change.
- You are responsible for making sure that you obtain this information.
- Come to classes on time and listen carefully for announcement(s).

### 2. Course Objectives

After the course study, students should be capable to:

- 1) Given an electric circuit, know how to analyze it;
- 2) know how to design a circuit according to an engineering problem.

### 3. Class types and activities

- 1) Lecture: Introduce the fundamental knowledge + Examples
- 2) Midterm + Final Exams;
- 3) Homeworks;
- 3) Quizzes (optional)

### 4. Teaching Method

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> lecture                          | <input checked="" type="checkbox"/> discussion and debate   |
| <input type="checkbox"/> team project(presentation and case studies) | <input type="checkbox"/> experiments(role-playing,etc)      |
| <input type="checkbox"/> designing and production                    | <input type="checkbox"/> on-site learning(on-site training) |
| <input type="checkbox"/> others                                      |   |

### 5. Support Systems in Use

- |  |   |   |
|--|---|---|
| <input checked="" type="checkbox"/> e-class / AjouBb     | <input type="checkbox"/> automatic recording system | <input type="checkbox"/> web-based assignment |
| <input type="checkbox"/> cyber lecture                   | <input type="checkbox"/> online content             |   |
| <input type="checkbox"/> class behavior analyzing system | <input type="checkbox"/> others                     |   |

### 6. Teaching Tools

- |   |  |   |
|---|--|---|
| <input checked="" type="checkbox"/> PBL(Problem Based Learning) | <input checked="" type="checkbox"/> CBL(Case Based Learning) | <input type="checkbox"/> TBL(Team Based Learning)           |
| <input type="checkbox"/> UR(Undergraduate Research)             | <input type="checkbox"/> FL(Flipped Learning)                | <input type="checkbox"/> DSAL(Data Science Active Learning) |
| <input type="checkbox"/> others                                 |  |   |

### 7. Knowledge and ability required for taking this course

- 1) Basic Physics knowledges;
- 2) Engineering Math.;
- 3) Matlab/C/C++ programming (optional).

## 8. Method of Evaluation

Evaluation Item	The Number of Times	Evaluation Proportion	Remarks
Attendance	30	10%	
midterm exam	1	30%	
final exam	1	30%	
quiz	1	10	
presentation			
discussion			
homework	4	20%	
etc			
study hours			

## 9. Textbook and supplementary material

Main/Sub	Title (Web-site)	Writer	Publisher	Publication year
Main	Introduction to Electric Circuits	R. C. Dorf and J. A. Svoboda	Wiley	

## 10. Class system and Class shedule

1. Circuit Elements; 2. Resistive Circuits; 3. Mehtods of Analysis of Resistive Circuits; 4: Circuit Theorems; 5: Energy storage elements included circuits analysis; 6: Sinusoidal steady-state Analysis.
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### < Class Schedule >

\* language : K-korean, E-English

Weeks	Topics	language	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
1	Introduction	E	Ran Rong	Lecture		
2	Circuit elements	E	Ran Rong	Lecture	HW	
3	Resistive Circuits	E	Ran Rong	Lecture	HW	
4	Node voltage analysis	E	Ran Rong	Lecture	HW	
5	Mesh current analysis	E	Ran Rong	Lecture	HW and miniproject	

## < Class Schedule >

\* language : K-korean, E-English

Weeks	Topics	language	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
6	superposition theorem	E	Ran Rong	Lecture	HW	
7	Thevenin Theorem	E	Ran Rong	Lecture	HW	
8	Midterm	E	Ran Rong			
9	Norton's Equivalent circuit	E	Ran Rong	Lecture	HW	
10	Capcitor and inductor	E	Ran Rong	Lecture	HW	
11	RL circuit	E	Ran Rong	Lecture	HW	
12	RC circuit	E	Ran Rong	Lecture	HW and miniproject	
13	Circuits with two energy storage elements	E	Ran Rong	Lecture	HW	
14	Sinusoidal steady-state analysis	E	Ran Rong	Lecture	HW	
15	Impedances	E	Ran Rong	Lecture	HW	
16	Final exam	E	Ran Rong			

## 11. Other items of notification