

## Circuit Theory

Course Name	Course section (credit/hours)		Required course(3/3)		course code	C042
	course item				course component	
	Target students Division/major/grade				opening semester	2021 1ST SEMESTER
	Class time and classroom		Tue D(WH509)Thu C(WH509)		English Grade	A(100%English)
Reference to this course	Credit compositon		Theory(3) + Design(0) + Practice(0)			
	Prerequisite courses		회로이론			
	Related basic courses		공학수학			
	Recommanded concurrent courses					
	Related advanced course					
Instructor	Name (title/division)		Ran Rong(Assistant Professor, Electrical and Computer Engineering)			
	Office Room Number	종합관 603호	Extension Number	2375	e-mail	sunnyran@ajou.ac.kr
	Office hour			Homepage address		
Teaching Assistant	Name (title/division)					
	Office Room Number		Office phone Number		e-mail	

### 1. Course Introduction

The electric circuits are the parts of the basic fabric of modern technologies. This course introduces the fundamental knowledge of electric circuits, including circuits elements, resistant 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 & course outcome

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"/> 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 Scienced Active Learning) |
| <input type="checkbox"/> others                                 |  |  |

### 7. Evaluation method of course outcome

Evaluation Item	The Number of Times	Evaluation Proportion	Remarks
Attendance	30	10%	
midterm exam	1	35%	
final exam	1	35%	
quiz			

## 7. Evaluation method of course outcome

Evaluation Item	The Number of Times	Evaluation Proportion	Remarks
presentation			
discussion			
homework	5	20%	
etc			
study hours			

## 8. Textbook and Reference material

Main/Sub	Title	Writer	Publisher	Publication year
Sub	Introduction to Electric Circuits	R. C. Dorf and J. A. Svoboda	Wiley	
Main	Engineering Circuit Analysis	J. David Irwin	Wiley	

## 9. 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.
---

### < Schedule >

\* language : K-korean, E-English

Weeks	Title of lecture	language	time distribution(minutes)			Teaching Method	evaluation method
			theory	design	experiment practice		
1	Introduction	E	3			Lecture	
2	Circuit elements	E	3			Lecture	
3	Resistive Circuits	E	3			Lecture	
4	Node voltage analysis	E	3			Lecture	HW1
5	Mesh current analysis	E	3			Lecture	
6	superposition theorem	E	3			Lecture	HW2
7	Thevenin Theorem	E	3			Lecture	

### < Schedule >

\* language : K-korean, E-English

Weeks	Title of lecture	language	time distribution(minutes)			Teaching Method	evaluation method
			theory	design	experiment practice		
8	Midterm	E	3				
9	Nortons Equivalent circuit	E	3			Lecture	HW3
10	Capcitor and inductor	E	3			Lecture	
11	RL circuit	E	3			Lecture	
12	RC circuit	E	3			Lecture	HW4
13	Circuits with two energy storage elements	E	3			Lecture	
14	Sinusoidal steady-state analysis	E	3			Lecture	HW5
15	Impedances	E	3			Lecture	
16	Final exam	E	3				

#### 10. Contribution index of the course for attaining ABEEK program outcomes

course outcome	contribution scale
No Data	

#### 11. Analysis of improved matters for the previous semester

#### 13. Reference items