

# 강 의 계 획 서(Syllabus)

## [1] 기본 정보(Basic Information)

### ■ 강의 정보(Course Information)

교과목명 (Course Title)	CIRCUIT THEORY (회로이론)	강의유형 (Course Type)	이론
------------------------	-----------------------	-----------------------	----

## [2] 학습 목표/성과(Learning Objectives/Outcomes)

### ■ 과목 설명(Course Description)

This course aims to analyze and understand circuits composed of the fundamental elements: resistor (R), inductor (L), and capacitor (C). It delivers essential circuit theory knowledge that not only undergraduate students majoring in electrical engineering need to know but also individuals interested in circuit design. The instruction is conducted in English, with brief summaries provided in Korean when necessary.

### ■ 학습 목표(Learning Objectives)

A course on fundamentals of electric circuits; basic elements and laws; techniques of circuit analysis: node voltage, mesh current, Thevenin, Norton, and source transformation; operational amplifier; inductors, capacitors, mutual inductance; transient response of RC, RL, and RLC circuits; steady state AC circuits.

### ■ 학습 성과(Learning Outcomes)

This course teaches techniques for analyzing circuits composed of RLC elements, and, above all, it focuses on learning intuition to view and understand circuits.

## [3] 강의 진행 정보(Course Methods)

### ■ 강의 진행 방식(Teaching and Learning Methods)

강의 진행 방식	추가 설명
온라인 강의	강의자료 배포. 온라인 동영상 수업

### ■ 수업 자료(Textbooks, Reading, and other Materials)

수업 자료	제목	저자	출판일/게재일	출판사/학회지
자체 개발 강의노트 (PPT, PDF)				

#### [4] 수업 일정(Course Schedule)

차시	강사명	수업주제 및 내용	제출 과제	추가 설명
1	이우주	What is circuit theory? What are we going to study? Why should we study it?		Basic Concepts of DC Circuit
2	이우주	What is a DC circuit? What are its components and characteristics?		Basic Laws of DC Circuit
3	이우주	The easiest way to analyze circuits is nodal analysis.		Method of DC Circuit Analysis (1)
4	이우주	Loop analysis is as easy as nodal analysis. Let's learn this too.		Method of DC Circuit Analysis (2)
5	이우주	Once you've learned nodal and loop analysis techniques, you're ready to tackle Thevenin circuits. Let's study!		Circuit Theorems (1)
6	이우주	If you've learned Thevenin, you'll automatically learn Norton circuits as well.		Circuit Theorems (2)
7	이우주	For all your hard work in studying so far, an OP Amp is ready for you. Let's delve into OP Amps, the easiest part of circuit theory.		Operational Amplifiers
8	이우주	We've covered R so far. Now it's time to study the remaining LC of RLC.		Capacitors and Inductors
9	이우주	Don't be alarmed by the introduction of L and C. Here comes a very easy first-order circuit to make you comfortable.		First Order Circuits
10	이우주	After 'first' comes 'second,' naturally, it's the second-order circuit.		Second Order Circuits
11	이우주	Sinusoids and phasors. Honestly, the difficulty level does increase suddenly. But you can do it.		Sinusoids and Phasors (1)
12	이우주	Now that you've studied Sinusoids and Phasors, it's time to test your understanding by solving some problems.		Sinusoids and Phasors (2)
13	이우주	Let's study Sinusoidal Steady-State Analysis. While this part is indeed challenging, it's worth the challenge.		Sinusoidal Steady-State Analysis
14	이우주	Now let's take some time to summarize what we've learned so far. You all now understand what a circuit is.		Review and summary

#### [5] 수강생 학습 안내 사항

This course is designed for students who are encountering circuits for the first time. No separate prerequisites are required, just curiosity about circuits and a willingness to learn.