

# Syllabus (2022-Summer)

Course Title	Engineering Electromagnetics	Course No.	EE101
Credit	3 credits	Hours	45 Hours
Class Time Classroom	Mon to Thu Online class		
Instructor	Kahyun Lee	Electronic and Electrical Engineering	
	E-mail: kh.lee@ewha.ac.kr	Phone: +82-2-3277-4443	
Office Hours Office Location	Zoom meeting anytime (Please make an appointment by email in advance)		

## I. Course Overview

### 1. Course Description

This course covers the basic concepts of static electric and magnetic fields, together with some vector calculus required in estimating or predicting these field quantities. Time-varying fields and Maxwells' equations will be introduced next. Then, electromagnetic waves will be addressed. After this class, students will have the ability to apply electromagnetic theory to the solution of engineering problems.

### 2. Prerequisites

General physics II

### 3. Course Format

Lecture	Discussion/Presentation	Experiment/Practicum	Field Study	Other
100%	%	%	%	%

### 4. Course Objectives

The objective of this class is to understand the underlying theory and applications of electromagnetics.

Major topics of this course include:

- Vector analysis
- Static electric fields
- Static magnetic fields
- Maxwell's equations
- Wave equations
- Electromagnetic energy transfer
- Reflection of electromagnetic waves
- Transmission lines

### 5. Evaluation Systems

Relative evaluation  Absolute evaluation (for Ewha International Summer College students only)  Others

Midterm Exam	Final Exam	Quizzes	Presentation	Projects	Assignments	Participation	Others
40%	45%	%	%	%	10%	5%	%

Problems will be assigned from textbooks or other sources.

- ※ Late homework WILL NOT be accepted.
- ※ 5 absences => Participation score = 0
- ※ According to school regulations, failing to attend more than 2/3 of the total hours of the classes without notice will result in F.
- ※ Being late for class 2 times will be counted as 1 absence.
- ※ No-show at mid-term or final exam could result in F.

## II. Course Materials and Additional Readings

### 1. Required Materials

Fundamentals of Engineering Electromagnetics, David K. Cheng, Addison Wesley

### 2. Supplementary Materials

Field and Wave Electromagnetics, David K. Cheng, 2nd edition, Addison Wesley  
 Electromagnetic Field and Waves, Magdy F. Iskander, Prentice Hall  
 'Field and Wave Electromagnetics' is a more detailed version of the textbook.

### 3. Optional Additional Readings

## III. Course Schedule

Day	Date	Topics & Class Materials, Assignments	Forms
Day 1	(6/30)	Electromagnetic model, Vector analysis	Live online
Day 2	(7/4)	Vector analysis	Pre-recorded video
Day 3	(7/5)	Static electric fields	Pre-recorded video
Day 4	(7/6)	Static electric fields	Pre-recorded video
Day 5	(7/7)	Steady electric currents	Pre-recorded video
Day 6	(7/11)	Static magnetic fields	Pre-recorded video
Day 7	(7/12)	Midterm exam	in-person

Day	Date	Topics & Class Materials, Assignments	Forms
<b>Day 8</b>	(7/13)	Static magnetic fields	Pre-recorded video
<b>Day 9</b>	(7/14)	Time-varying fields and Maxwell's equations	Live online
<b>Day 10</b>	(7/18)	Time-varying fields and Maxwell's equations	Pre-recorded video
<b>Day 11</b>	(7/19)	Wave equations	Pre-recorded video
<b>Day 12</b>	(7/20)	Electromagnetic energy transfer	Pre-recorded video
<b>Day 13</b>	(7/21)	Reflection of electromagnetic waves	Pre-recorded video
<b>Day 14</b>	(7/25)	Transmission lines	Pre-recorded video
<b>Day 15</b>	(7/26)	<b>Final exam</b>	in-person
Makeup Classes 1	(mm/dd)		
Makeup Classes 2	(mm/dd)		

#### IV. Special Accommodations

\* According to the University regulation section #57-3, students with disabilities can request for special accommodations related to attendance, lectures, assignments, or tests by contacting the course professor at the beginning of semester. Based on the nature of the students' request, students can receive support for such accommodations from the course professor or from the Support Center for Students with Disabilities (SCSD). Please refer to the below examples of the types of support available in the lectures, assignments, and evaluations.

Lecture	Assignments	Evaluation
<ul style="list-style-type: none"> <li>. Visual impairment: braille, enlarged reading materials</li> <li>. Hearing impairment: note-taking assistant</li> <li>. Physical impairment : access to classroom, note-taking assistant</li> </ul>	<ul style="list-style-type: none"> <li>Extra days for submission, alternative assignments</li> </ul>	<ul style="list-style-type: none"> <li>. Visual impairment: braille examination paper, examination with voice support, longer examination hours, note-taking assistant</li> <li>. Hearing impairment: written examination instead of oral examination</li> <li>. Physical impairment: longer examination hours, note-taking assistant</li> </ul>

- Actual support may vary depending on the course.

\* The contents of this syllabus are not final—they may be updated.