

Electricity and Magnetism 1

Course Name	Course type (credit/hours)	Required course(3/3)	Course code	G005
	Target students Division/major/grade	Physics/Sophomore	Opening semester	2020 2ND SEMESTER
	Class time and classroom	Mon C(Seong337)Wed C(Seong337)	English Grade	A(100%English)
Reference to this course	Prerequisite courses			
	Related basic courses	물리학2		
	Recommended concurrent courses			
	Related advanced courses			

Instructor	Name (title/division)		Jae-Ung Lee(Assistant Professor, Physics)			
	Office Room Number	원천관409	Office phone Number	2619	e-mail	
	Office hours			Homepage address	https://sites.google.com/view/jaeunglee/home	
Teaching Assistant	Name (title/division)					
	Office Room Number		Office phone Number		e-mail	

1. Introduction

Electrodynamics will treat electric and magnetic phenomena and electromagnetic (EM) waves, which can be basic tool to understand various phenomena in optics, solid-state physics, plasma physics and electrical engineering. Basic concept and laws of electromagnetism will be studied during two semesters. In this (first) semester, students will study basic concept of electrodynamics particularly focusing on electrostatics, magnetostatics and related phenomena in matters.

2. Course Objectives

This course is aiming for providing basic knowledge on electromagnetic phenomena.

3. Class types and activities

This course mainly consists of three-hour online lecture (Recording and real-time live lecture) per week and homework. Coursework will be evaluated by offline exams, homework, and attendance. Active attendance of students are strongly recommended

4. Teaching Method

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|--|---|
| <input checked="" type="checkbox"/> lecture | <input 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

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

6. Teaching Tools

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|--|---|---|
| <input type="checkbox"/> PBL(Problem Based Learning) | <input 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

Basic mathematical technique including differential and integral calculus will be required.

8. Method of Evaluation

Evaluation Item	The Number of Times	Evaluation Proportion	Remarks
Attendance		10%	
midterm exam	1회	40%	
final exam	1회	40%	
quiz			
presentation			
discussion			
homework		10%	
etc			
study hours	8~10 시간		

9. Textbook and supplementary material

Main/Sub	Title (Web-site)	Writer	Publisher	Publication year
Main	Introduction to Electrodynamics (4th edition)	D. J. Griffiths	Pearson	2013
Main	Introduction to Electrodynamics (4th edition, new international edition)	D. J. Griffiths	Pearson	2013
Ref.	Classical electrodynamics	J. D. Jackson	Wiley	2007

10. Class system and Class shedule

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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, Vector analysis (Online)	K/E	Jae-Ung Lee			
2	Vector analysis (Online)	K/E	Jae-Ung Lee			
3	Electrostatics 1 (Online)	K/E	Jae-Ung Lee			

< Class Schedule >

* language : K-korean, E-English

Weeks	Topics	language	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
4	Electrostatics 2 (Online)	K/E	Jae-Ung Lee			
5	Potentials 1 (Online)	K/E	Jae-Ung Lee			
6	Potentials 2 (Online)	K/E	Jae-Ung Lee			
7	Potentials 3 (Online)	K/E	Jae-Ung Lee			
8	Mid-exam (Offline)	K/E	Jae-Ung Lee			
9	Electric fields in matter 1 (Online)	K/E	Jae-Ung Lee			
10	Electric fields in matter 2 (Online)	K/E	Jae-Ung Lee			
11	Magnetostatistics 1 (Online)	K/E	Jae-Ung Lee			
12	Magnetostatistics 2 (Online)	K/E	Jae-Ung Lee			
13	Magnetic fields in matter 1 (Online)	K/E	Jae-Ung Lee			
14	Magnetic fields in matter 2 (Online)	K/E	Jae-Ung Lee			
15	Overview (Online)	K/E	Jae-Ung Lee			
16	Final exam (Offline)	K/E	Jae-Ung Lee			

11. Other items of notification