**Syllabus (2021-Spring)**

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| Course Title | Electrodynamics II | Course No. | 20530-01 |
| Department/ Major | Physics | Credit/Hours | 3 |
| Class Time/ Classroom | Wednesday (11:00-12:15), Friday (09:30-10:45) / Online lecture only | | |
| Instructor | Name: Taeyoung Choi | Department: Physics | |
| E-mail: tchoi@ewha.ac.kr | Phone: 02-3277-6951 | |
| Office Hours/ Office Location | Wednesday (10:00-11:00), Friday (11:00-12:00) / Online | | |

**Ⅰ. Course Overview**

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| 1. Course Description |
| Electromagnetic interaction is one of the four fundamental interactions and governs most of phenomena in our daily life. This course is dedicated to students majoring in Physics. In this lecture, I would like to introduce basic concepts of electromagnetic interactions and let students understand the physics as easy as possible. This course will have three exams (absolute grading system) - Midterm I, Midterm II, Final without any homework. |

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| 2. Prerequisites |
| General Physics I, II and Electrodynamics I |

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| 3. Course Format |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | Lecture | Discussion/Presentation | Experiment/Practicum | Field Study | Other | | 100 % | % | % |  | % |   (Instructor can change to match the actual format of the class.)  Explanation of course format: This course will be given by 100% lectures |

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| 4. Course Objectives |
| 1. Introduce basic mathematics to understand its underlying physics 2. Introduce basic and fundamental concepts of electromagnetic interactions with minimizing mathematical derivation 3. Train students to explain physical phenomena related to electromagnetic forces |

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| 5. Evaluation System |
| ☐ Relative evaluation ■ Absolute evaluation ☐ Others :  - Explanation of evaluation system:   |  | | --- | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | Midterm Exam | Final Exam | Quizzes | Presentation | Projects | Assignments | Participation | Other | | 30 + 30 % | 40 % | % | % | % | % | % | % |   \* Evaluation of group projects may include peer evaluations. |

**Ⅱ. Course Materials and Additional Readings**

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| 1. Required Materials |
| Introduction to Electrodynamics – David J. Griffiths |
| 2. Supplementary Materials |
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I will provide necessary materials and readings according to lectures

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| 3. Optional Additional Readings |
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**Ⅲ. Course Policies**

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| \* For laboratory courses, all students are required to complete lab safety training.   1. **Twice being late in lecture is considered as one absence.** 2. **There will be total three exams. Two mid-terms will be 30% each (total 60%) and Final exam will be 40% of evaluation.** 3. **Date of Mid-term I, II, and Final-term exam are fixed and not changeable.** 4. **This lecture will follow absolute grading system.** 5. **These policies and lecture contents given here are tentative and subject to change.** |

**Ⅳ. Course Schedule (15 credit hours must be completed.)**

| Week | Date | Topics & Class Materials, Assignments |
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| **Week 1** | (03/03) | Vector analysis – Divergence and Curl |
| (03/05) | Ch 7.1 Electromotive Force |
| **Week 2** | (03/10) | Ch 7.1 Electromotive Force |
| (03/12) | Ch 7.2 Electromagnetic Induction |
| **Week 3** | (03/17) | Ch 7.2 Electromagnetic Induction |
| (03/19) | Ch 7.3 Maxwell’s equation |
| **Week 4** | (03/24) | Ch 7.3 Maxwell’s equation |
| (03/26) | Ch 8.1 Conservation Laws |
| **Week 5** | (03/31) | Ch 8.2 Momentum |
| (04/02) | Ch 8.2 Momentum/ Ch 9.1 Waves in 1-D |
| **Week 6** | (04/07) | Summary of lecture/ Mid-term I (6:30 pm) |
| (04/09) | Ch 9.2 Electromagnetic Waves in Vacuum |
| **Week 7** | (04/14) | Ch 9.3 Electromagnetic Waves in Matter |
| (04/16) | Ch 9.3 Electromagnetic Waves in Matter/ Ch 9.4 Absorption and Dispersion |
| **Week 8** | (04/21) | No lecture due to midterm period for general classes |
| (04/23) | No lecture due to midterm period for general classes |
| **Week 9** | (04/28) | Ch 9.4 Absorption and Dispersion/ Ch 9.5 Guided Waves |
| (04/30) | Ch 9.5 Guided Waves |
| **Week 10** | (05/05) | Children’s day (No lecture) |
| (05/07) | Summary of lecture/ Mid-term II (6:30 pm) |
| **Week 11** | (05/12) | Ch 10.1 The Potential Formulation |
| (05/14) | Ch 10.1 The Potential Formulation/ Ch 10.2 Continuous Distributions |
| **Week 12** | (05/19) | Buddha’s Day (No lecture) |
| (05/21) | Ch 10.2 Continuous Distributions/ Ch 10.3 Point Charges |
| **Week 13** | (05/26) | Ch 10.3 Point Charges |
| (05/28) | Ch 11.1 Dipole Radiation |
| **Week 14** | (06/02) | Ch 11.1 Dipole Radiation |  |
| (06/04) | Ch 11.2 Dipole Radiation and Point Charges |
| **Week 15** | (06/09) | Ch 11.2 Dipole Radiation and Point Charges |
| (06/11) | Summary of lecture/ Final exam (6:30 pm) |
| Makeup Class | (04/26) | Make up class (time will be announced later)  Ch 9.4 Absorption and Dispersion |
| Makeup Class | (mm/dd) |  |

**Ⅴ. Special Accommodations**

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| \* 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 | | ․ Visual impairment : braille, enlarged  reading materials  ․ Hearing impairment : note-taking  assistant  ․ Physical impairment : access to classroom,  note-taking assistant | Extra days for submission,  alternative assignments | ․ Visual impairment : braille examination paper,  examination with voice support, longer  examination hours, note-taking assistant  ․ Hearing impairment : written examination  instead of oral  ․ Physical impairment : longer examination  hours, note-taking assistant |   - Actual support may vary depending on the course. |

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