

Sabancı University
Faculty of Engineering and Natural Sciences

Fall Semester 2024-2025

PHYS 411 – PHYS 511

ELECTROMAGNETIC THEORY I

Instructor: Alhun Aydın (Office: FENS G013, alhun.aydin@sabanciuniv.edu)

Teaching Assistant: TBA

Main text : D. J. Griffiths, “Introduction to Electrodynamics”

Supplementary text: J. D. Jackson, “Classical Electrodynamics”

Summary: Fundamentals of electromagnetism. Maxwell's equations – General. Electrostatics. Boundary value problems. Propagation of electromagnetic waves. Wave guides and resonant cavities.

PHYS 411-511 Course outline:

- 1) Vector calculus
- 2) Electrostatics
- 3) Boundary value problems
- 4) Green's functions
- 5) Electric field
- 6) Magnetostatics
- 7) Magnetic field
- 8) Electromagnetic waves
- 9) Gauge theory

Grading

5 Homeworks 30%

1 Midterm 30%

1 Final %40

Class hours

Monday 11:40-13:30 (FENS L047)

Tuesday 08:40-09:30 (FENS L047)

Office hours:

Monday 10:40-11:30

Recitation hours:

Wednesday 11:40-13:30 (FENS G025)