

ELECTROMAGNETIC THEORY, FIZ 411E, Spring 2020

Lecturer: Ömer Faruk Dayı

Office Hours: Tuesday 15-17.

Lectures: D202. Tuesday and Thursday: 8:30-10:30; Friday: 10:30-11:30.

Textbook: *Introduction to Electrodynamics, D.J. Griffiths.*

Other Relevant/Useful Books: 1. *Electricity and Magnetism, E. Purcell;*
2. *Classical Electrodynamics, J.D. Jackson.*

CONTENTS

- 1-** Vector Analysis
- 2-** Electrostatics
 - a) Electric Field and Potential
 - b) Gauss Law
 - c) Work and Energy
 - d) Conductors
- 3-** Boundary-value Problems in Electrostatics
 - a) Laplace Equation
 - b) Method of Images
 - c) Multipole Expansion
- 4-** Electric Fields in Matter
- 5-** Magnetostatics
 - a) Biot-Savart Law, Ampere Law
 - b) Vector Potential
- 6-** Magnetic Fields in Matter
- 7-** Electrodynamics
 - a) Electromotive Force
 - b) Induction
 - c) Maxwell Equations
- 8-** Conservation Laws
- 9-** Electromagnetic Waves

Grading:

Homework: Each week, **10 %**.

Short exam: Each Friday, **20 %**.

Midterm 1: 26 March 2020, Thursday, **15 %**.

Midterm 2: 7 May 2020, Thursday, **15 %**.

Final Exam: 02-14 January 2020, **40%**.

Attendance: 70% to HW Exams and 70% to Short Exams and 25/100 points from Hw+Q+MTs are required.

If you take less than 40/100 points, you will get FF as final grade.

Web page: <http://web.itu.edu.tr/~dayi/EMT.html> and [Ninova](#)