EEE 452/552 Antenna Engineering

Spring Semester 2014

Textbook:

C. A. Balanis, *Antenna Theory*, John Wiley & Sons, 3rd Edition, 2005.

References:

- W. L. Stutzman and G. A. Thiele, *Antenna Theory and Design*, John Wiley & Sons, 2nd Edition, 1998.
- R. E. Collin, *Antennas and Radio Wave Propagation*, McGraw-Hill New York, 1985.

Instructor: Vakur B. Ertürk (EE 401)

Teaching Assistant: Manouchehr Takrimi (EE 212) (takrimi@ee.bilkent.edu.tr)

Time/Place: Monday 15:40-17:30 (EE 317); Thursday 13:40-15:30 (EE 317)

Web Page: http://www.ee.bilkent.edu.tr/∼eee452/

Goals: To introduce the fundamental principles of antenna theory and to apply them to the analysis, design and measurement of antennas. To introduce the communication system aspects of antenna engineering through practical design examples.

Prerequisites by Topics: Electromagnetic Waves, Vector Calculus, Complex Numbers, Differential equations.

Topics:

1. Introduction to antennas and radiation.
2. Electromagnetic fundamentals.
3. Fundamental parameters of antennas.
4. Fundamentals of electromagnetic radiation and electromagnetic theorems.
5. Simple antennas: Linear wire, dipole and loop antennas.
6. Array theory.
7. Antenna synthesis (if time permits).
8. Aperture antennas and horns (if time permits).
9. Microstrip and other type of antennas (if time permits).

Grading Policy (Tentative):

- Quiz (8 quizzes, each counts 5%): 40%
- Midterm Exam: 25%
- Final Exam: 35%
- Project: *Bonus* A separate project for each student (or a group of at most 2 students) will be given upon request. Project should be nearly completed to receive some bonus credits. More about the project will be discussed in class.

Attendance: All students are expected to attend the lectures. Attendance will be taken and should be minimum 70% throughout the semester to obtain a passing grade. For those who attend the course less than 70% without a valid excuse will receive **FZ** automatically regardless of their midterm and quiz grades.