ECE 5850 001— Antennas I
Fall 2016 Syllabus

Instructor: Reyhan Baktur

Office/Phone: EL 150/ 797-2955

Office Hours:

Thursday 2:30-4:30,

Open door policy (you may come in while my door is open)

Appointment via email: reyhan.baktur@usu.edu

Course Info: ECE 5850 — Antennas I

Class Time: 9 am to 10:15 am T,TH

Class Location: Engineering 202

Textbook(s):

Antenna Theory: Analysis and Design, 3rd Edition, Constantine A. Balanis, Wiley Interscience

Notes by Instructor.

Suggested Texts:

Antennas: For All Applications, Kraus and Marhefka, 3rd Edition. McGraw Hill

Antenna Theory and Design, Stutzman and Thiele, 2nd Ed., Wiley

Antenna and EM Modeling with MATLAB, Sergey N. Makarov

Objectives:

The goal of this course is to provide students with an understanding of antenna theory, design and basic measurement techniques. Objectives include introduction to antenna fundamentals and theory, important types of antennas, antenna modeling, as well as the operation of some basic RF equipments to perform antenna measurements plus some design aspects of antennas.

Topics:

1. Introduction to Antennas
2. Antenna math (Vector potentials, computation of antenna fields)
3. Antenna parameters
4. Linear wire antennas
5. Loop antennas
6. Antenna measurements
7. Antenna theory (Image theory, Reciprocity, Radar Cross Section)
8. Antenna arrays

9. Introduction to antennas modeling, measurement and matching techniques

10. Important types of antennas (Horn, Helical, Yagi-Uda, Microstrip Patch)

Exams and Projects:

- 3 in class exams (Tentatively Sep. 24, Oct. 29, Nov. 19)

- 1 programming project (it is like a homework with more details)

- 1 group project (the lecturer will form a group for you)

- 1 final project (you are free to set up a group, or do it alone)

- No final exam

Your Final Grades:

Final score = 50% exams +15% homework+15% class projects (one 8% programming project + 7% group project) +20% final project (**strict due date!**).

Final grade:

A: 93 to 100   A-: 90 to 92

B+: 87 to 89   B: 83 to 86   B-: 80 to 82

C+: 77 to 79   C: 73 to 76   C-: 70 to 72

D+: 65 to 69   D: 60 to 64

F: Lower than 60.

Course Policy:

- You may discuss out-of-class projects and problems with each other, but you must turn in your **own** solutions on assignments. All computer assignments and projects must be the result of your own work. You may discuss issues regarding the use of computer workstations and MATLAB but you must not share code and/or results. If you turn in code or results developed fully or in part by someone else, then you will not get any credit for the homework or projects. The person who gives out the code or answer will have the same punishment.

- Students will need access to a computer with MATLAB loaded on it for programming homework.

- Notes will be posted on Canvas. It is important that you check the website for new updates before coming to the class.

- You are asked to turn in the ELECTRONIC COPY (MS Word) of programming homework and project reports. Good grammar and proper English is a requirement for homework.

- The homework with electronic version is to be turned it via e-mail attachment or flash drive. Please do not imbed the attachment to the email text.

- Reasonable neatness is required on handwritten assignments and exams.

- Only one exam will be close book/note, the other two are open book/note.

Cheating Policy: Just do not try that!

What happens if you cheat?

- If you are caught cheating on your project, you will get zero point for the first time and you will get an F for the class if you do it for a second time.

- If you are caught cheating on any form of the exam, you will get an F for the class and you will be reported to the department.

Things that constitute cheating

- Copying someone else's code from class. It is ok to work together, but each student should write and comment his/her own code.

- Copying code from textbooks, website, or from former students. You may use reference material to help you to understand, but you have to create your own code and get it working.

- If you let other student use your code, then you are regarded as cheating.

What happens if others cheat?

This could lower your grade. Please tell me or other professors if you see cheating. You may do this anonymously. The ECE department is committed to reducing instances of cheating in our labs and classes.

Attendance:

Attendance is optional except during exams. If you miss a class, see a classmate about any assignments that may have been given and/or check the website. If the instructor is late to class by more than 15 minutes, then students may leave without penalty.

Course Accessibility:

In cooperation with the Disability Resource Center, reasonable accommodation will be provided for qualified students with disabilities. Please meet with the instructor during the first week of class to make arrangements. Alternate format print materials (large print, audio, diskette or Braille) will be available through the Disability Resource Center.

About programming homework and projects:

- You can copy graphs and plots out of MATLAB and paste them into your document.

- Make sure the graphs and plots you include came about as the result of **your** work. Do not use any images that you didn't generate yourself.

- Any graph or plot you include must have sufficient label/caption information for the reader to follow. For example, if you intend to include a plot of a pattern of an antenna, then you need to show antenna geometry (with captions) and the pattern plot (with captions). The axes should be labeled. Figures of graphs should be referred to in the commentary by figure number (or table number) if included. Look at your text book for examples. If you make a series of runs on an antenna for different parameter values, then you must present results such that they can be distinguished from one another. Labels and captions help with this.

Tutoring Center:
The College of Engineering has an Engineering Tutoring Center. Tutoring services are available free of charge to all College of Engineering students. You can find help for any engineering required courses, .i.e. math, chemistry, physics, and all engineering classes. The Tutoring Center is located in ENGR 322 and 324. Hours are Monday through Friday 8:00 AM to 5:00 PM with extended hours on Tuesday and Thursday until 7:00 PM.