EEL 4461    Antenna Systems

1. Catalog Description – (3 credits) Electromagnetic field theory and its application to antenna design.

2. Pre-requisites – EEL 3472

3. Course Objectives - The objective of this course is to introduce the fundamental principles of antenna and to apply them to the design and analysis of antenna systems. Students will learn how to characterize antennas and how to use antennas. Different types of antennas and their applications will be introduced, with focus on linear wire antennas, loop antennas, microstrip patch antennas, antenna arrays, and the design considerations of using antennas in wireless communication systems.

4. Contribution of course to meeting the professional component - 1.5 credits of Engineering Design, 1.5 credits of Engineering Science

5. Relationship of course to program outcomes: Skills student will develop in this course (ABET only undergraduate courses) - EE2, a, e, k

6. Instructor – Dr. Jennifer Lin
   a. Office location: 559 NEB
   b. Telephone: 392-4929
   c. E-mail address: jenshan@ufl.edu
   d. Class Web site: http://lss.at.ufl.edu/
   e. Office hours: Mon, Wed, Fri, 3rd period; Thurs, 9th period

7. Teaching Assistant - None
   a. Office location:
   b. Telephone:
   c. E-mail address:
   d. Office hours:

8. Meeting Times - Mon, Wed, Fri, 5th period

9. Class/laboratory schedule - 3 class periods consisting of 50 minutes each

10. Meeting Location – 202 NEB

11. Material and Supply Fees - None

12. Textbooks and Software Required -
   a. Title: Antenna Theory - Analysis and Design
   b. Author: Balanis
   c. Publication date and edition: 3rd ed. 2005
d. ISBN number:

13. Recommended Reading - None
   a. Title:
   b. Author:
   c. Publication date and edition:
   d. ISBN number:

14. Course Outline –
   Introduction; Fundamental principles of antenna
   Introduction of different types of antennas and their applications
   Antenna radiation pattern, power density, and intensity
   Antenna beamwidth, directivity, efficiency, gain
   Antenna polarization, input impedance, effective aperture
   Friis transmission equation and radar range equation
   Far-field radiation
   RF propagation, ground effect, weather effect, RF safety
   Dipole antennas
   Loop antennas
   Microstrip patch antennas
   Antenna arrays
   Antennas and wireless communication systems
   Practical antenna design using CAD

15. Attendance and Expectations - Attendance is required since I use blackboard a lot and you need to take notes. Cell phones and other electronic devices are to be silenced or turned off. No text messaging during class or exams. Homeworks are submitted online. Late homework submissions will not receive grades.

Requirements for class attendance and make-up exams, assignments, and other work are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

16. Grading –
   Homework (about 6 assignments): 10%
   Exam #1: 25%
   Exam #2: 25%
   Final Project and Presentation: 30% (report 20%, presentation 10%)
   Class Participation: 10% (active participation by asking and answering questions)

17. Grading Scale. –

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A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better).” Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

18. Make-Up Exam Policy - If you have a University-approved excuse and arrange for it in advance, or in case of documented emergency, a make-up exam will be allowed and arrangements can be made for making up missed work. University attendance policies can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Otherwise, make-up exams will be considered only in extraordinary cases, and must be taken before the scheduled exam. The student must submit a written petition to the instructor two weeks prior to the scheduled exam and the instructor must approve the petition.

19. Honesty Policy – All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.

“…failure to comply with this commitment will result in disciplinary action compliant with the UF Student Honor Code Procedures (http://www.dso.ufl.edu/sccr/procedures/honorcode.php)

20. Accommodation for Students with Disabilities – Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

21. UF Counseling Services – Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
   · UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.
   · Career Resource Center, Reitz Union, 392-1601, career and job search services.

22. Software Use – All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida
community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.