Instructor Information Sheet

8. Evaluation/Grade Reporting:

There will be three partial exams (20% each), one project (15%), quizzes & homework (5%) and one final exam (20%). No special projects for individuals.

The exams dates are: **Feb 18, Mar 18, Apr 15, 2010** during class period.

9. Deadlines for Project:

Project due date: TBD will be done using easyNEC Plus software, PCAAD or equivalent..

10. Student Assistance:

We will have a review section before each exam.

11. Attendance and Behavior:

Attendance is mandatory and you will behave.
The only electronic equipment you are allowed to use in class is your calculator, a hearing aid, pacemaker or other health aid you may need. Cellular phones and pagers are not to be used in class.

12. Instructor Responsibilities:

The instructor will grade all exams within two weeks of offering the exam, will keep regular office hours and attempt to answer all questions.

13. Course Outline and Schedule:

Topics	Required reading - Assigned problems	Number of lectures
Introduction, radiation mechanisms	**Ch. 1**	3
Fundamental parameters	**Ch. 2;** Prob. 3, 5, 6, 10, 11, 29, 39, 41, 48, 61,69	5
Radiation integrals and vector potentials	**Ch. 3;** Problems 1 and 3	1.5
Linear dipoles **Sections: 4.1-4.8**	**Ch. 4;** Probl. 23, 25, 29, 31, 32	3
Loop antennas **Sections: 5.1-5.5**	**Ch. 5** Probl. 3, 4,12, 13, 24	4
Antenna Arrays and mutual impedance **Sections: 6.1-6.10**	**Ch. 6** Probl. 1, 3, 10 , 14, 30, 40, 46,	8
Yagi-Uda, Broadband antennas: Log-periodic, Helix; Impedance matching. **sections. 9.7,10.3, 11.4**	**Ch. 9 , 10 &11** Probl. **10**.26-**10**.30 , **10**.36, **11**.3(a)	9
Aperture antennas, Horn and Reflector antennas Sections **12.**1,2,5, **12.**7.1, **12.8-9, 13.1-13.5, 15.1,15.2, 15.4, 15.5**	**Ch. 12, 13 &15** Probl. **12**. 14, 22, 26, 27, **13**. 6, **13**. 7, **13**. 10, **13**. 13, **13**. 15, **13**. 16, **13**. 17, **15**.10, **15**.7, **15**.12, **15**.21, **15**.22, **15**.25	5
Microstrip patches S.**14.1, 14.2, 14.5, 14.8**	**Ch. 14** Probl. **14**.1-2, **14**.4, **14**.7a&b	1.5

14. Additional References:

1. **Antenna Theory: Analysis and Design**, 3rd Edition by Constantine A. Balanis (April 4, 2005)
2. Elliott, Robert S., Antenna Theory and Design, Wiley-IEEE Press, 2003.
3. Conformal Array Antenna Theory and Design (IEEE Press) Lars Josefsson & Patrik Persson (2006)
4. IEEE Trans. On Antennas and Propagation

There might be changes to the above syllabus. In that case, changes will be notified to the students in class. Students absent or late to class are responsible for knowing any changes announced in class during their absence. **

INEL 5305 Antenna Theory and Design

Electrical and Computer Engineering Dept.
University of Puerto Rico at Mayagüez

Instructor Information Sheet

1. General Information:

Instructor: **Sandra Cruz Pol, *Ph.D.***
Title: Professor
Office: S 205Annex
Phone: 832-4040 ext. 2444
Office Hours: Hours: KJ 7:40 - 8:45 AM
If there is a conflict with my office hours make an appointment!

E-mail / URL: sandracruzpol@ieee.org , http://www.ece.uprm.edu/~pol/

2. Course Description:

Course Number: INEL 5305
Course Title: , Antenna Theory and Design
Course Textbook: *C.A. Balanis, Antenna Theory, Analysis and Design. NY: John Wiley **any** edition*

3. Purpose:

This is a technical elective course for students following the Applied Electromagnetics option.

4. Course Goals:

After completing the course, the student should be able to describe the radiation mechanisms and the fundamental antenna principles and parameters and use them to understand different types of antennas and to analyze antenna systems. The students should also be able to choose the best type of antenna for different situations and to design antenna systems given a set of specifications.

5. Requirements:

All students are expected to : Do all assigned readings and related homework, Work in teams, Attend the laboratory and demonstration sessions, Design, simulate an antenna or antenna array, given the specifications and Pass all tests to receive credit for the course.

6. Laboratory/Computer Usage:

At this moment there is no laboratory for this course.

Students are required to use existing antenna design software, such as NEC WIN to simulate and study performance of designs of antennas. These programs will be used to solve homework problems and for a class design project.

7. Instructional Strategy:

The course will consist of lectures, discussions and problem solving. Homework will be assigned at each meeting period and it is due the next meeting period. Quizzes are given sporadically, related to assigned problems.

Homework will be assigned at each meeting period and it is due the next meeting period. Homework will be discussed in class and you are expected to fully participate in homework discussion as frequently as possible.