



INEL 4152- Electromagnetic Theory II

Credit-Hours: 3, Pre-requisites: INEL 4151, MATE 4009, **Co-requisites:** none

Introduction to Electromagnetic Theory including wave propagation on different media and near boundaries, transmission line theory, waveguides and introduction to antenna theory.

Text: *Elements of Electromagnetics*, 4th Edition, by M. Sadiku, Oxford, University Press

Professor: Dr. Sandra L. Cruz-Pol, [*Check my webpage* www.ece.uprm.edu/~pol]

Office: Stefani Annex S-Annex-205, **Hours: M, W 10:20 - 11:00 am**, : x 2444, SandraCruzPol@ieee.org

EVALUATION: 11% quizzes & homeworks, 3 parcial exams @ 23%, final 20% = 100% A series of laboratory demos is used to provide a hands-on illustration of many of the class topics.

Partial Exams: All during class period.

Mar 8, 2013

Apr 3, 2013

May 3, 2013

RULES:

- Students are not allowed to leave the classroom during class except in exceptional circumstances.
- **Exam attendance** is required unless you have a medical excuse or equivalent documented emergency.
- **Class attendance** is also required. You are allowed three unexcused absences with no questions asked; beyond this number your grade will be reduced.
- **Dishonest behavior**, as commonly understood, which includes exam cheating or plagiarism, will result in at least a zero for the exam or project, and for an aggravated incident, failure in the course and initiation of University disciplinary action. In research, you expect to build on others' work, but it should be very clear what is yours and what is theirs, clearly referenced or acknowledged.
- If there is a conflict with my Office Hours => schedule by appointment.
- No beepers and/or cellular phones are allowed during exams, and their use during classes should be limited to emergencies. Leave the room if the need to use it arrives.
- No baseball caps allowed during quizzes or exams.
- No "special" projects will be given to anyone to improve grades or for any other reason.
- **Disabilities:** All the reasonable accommodations will be coordinated in accordance with the needs of the student.
- I regularly communicate announcements like quiz cancellations and changes via your **UPR email**.
- Standard grade curve is A:100-90, B:89-80, C:79-70, D:69-60, F:59 and below.

COURSE TOPICS	#Lectures	Suggested problems
Review of Maxwell's equations, Electromagnetic history and phasors. CH. 9.4, 9.5 & 9.7	2	3 rd Edition 23,31,32,33 4 th Edition 23,33,34,36 5 th Edition 25, 37, 39
Waves propagating in unbounded lossy media, plane waves , Wave Polarization, Poynting Vector. Wave incidence at boundaries, Reflection and Transmission, Power Flow, Normal and Oblique incidence CH. 10	12	3 rd Ed. 1,3,7,9,11,17,20, 27a&b, 31, 35, 44, 46. 4 th Ed. 1,3,7,9,13,19,21,20,31,33,37, 43, 57, 59 5 th Ed. 1,3,6,7,9,13,14,17,21, 31, 39,44,61,62
Waves propagating inside transmission lines , SWR, Smith Chart , the slotted line, microstrip lines. CH. 11 (except 11.7)	12	3 rd Ed. 1, 9, 13, 21,25,31,33, 41, 43, 51 4 th Ed. 1,9, 11,18,31,37, 47, 22, 38,50, 59 5 th Ed.1, 15,17,27,34,41,50,53,55,63
Waves propagating inside metal rectangular waveguides , TE and TM modes, Waveguide Cavities. CH. 12	10	3 rd Ed.3, 5, 9,11, 23, 34 4 th Ed. 4, 6, 14,29, 32, 34 5 th Ed. 5,11,15,27,41
Wave generated by antennas , antenna theory, dipole antennas, RADAR equation, Friis Equation. CH.13.1,6,8,9	6	3 rd Ed. 3, 15, 17 4 th Ed. 4, 15, 19 5 th Ed. 3, 17, 20

****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. ******