Course Goal: To study the advanced topics in antenna designs used in wireless communication systems.

Prerequisite: EE540 (Microwave Devices and Systems) and EE 645 (Antennas and Wave Propagation).

Who can attend: This course is primarily for antenna research group students.

Course Credit: 3

Lecture Hours and Location: Monday (11.00AM to 1.40PM) in Antenna and Microwave Lab (E302D)/E203E Dean’s Conference Room for Lectures

Course Synopsis: The course focuses on the advanced topics in antenna designs which are currently being researched and designed in industry and academia for wireless/satellite communications, and radar applications. The course includes two antenna/array design group projects, including fabrication, measurement, report, and presentation. Further, it includes simulation design of antennas and programs compilations.

Course Contents: The course can include the following topics: Travelling wave antennas, Reflector antennas, Waveguide feedhorns, Broadband planar antennas, Phased array antennas, Novel electromagnetic materials, Antenna miniaturization techniques, Reconfigurable antennas, MIMO antennas, electrically small antennas and Numerical methods for electromagnetics. The course will be covered based on your projects presentations/discussions and through my lectures.

Reference Journals/Books:

- IEEE Trans. Antennas and Propagation journal
- IEEE Antennas and Wireless Propagation Letters
- IEEE Antenna and Propagation Magazine

Evaluation: Final letter grade will be determined based on the student’s performance in research, and design project reports/presentations. Missing a component completely, will earn you Fail grade. The weights of the components are as follows:
Components

1) Review Research Report/Presentations (3 Reports) 45% (10% Report + 5% Presentations)
2) Design Reports/Pre. (1 Simple + 1 Novel Design) 40% (15% Report + 5% Presentations)
3) Final Report and Discussion 15% (10% Report + 5% Discussion)

Presentation: 30 minutes per report in the class plus 5-10 minutes questions

Note: Novel design generally leads to journal/conference publications.

Policies: Attendance is essential for the successful completion of this course. Plagiarism will NOT be tolerated.

We will meet in the Dean’s conference room for following days: To be announced during the class.


  a. Title
  b. Authors
  c. Abstract
  d. Introduction
  e. Literature Review
  f. Theory and Design Methodology
  g. Design Examples/antenna survey results
  h. Recommendation and Conclusion
  i. References

Instructor:

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Office Hours: By appointment