

ECE 617 Antennas: Design and Application

Spring 2017

TuTh 12:00 - 1:15 pm in FRNY B124

Instructor

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Office hours:
Tu - 3:30 pm - 5:00 pm
Th - 9:30 am - 11:00 am
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Assistant

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Office hours:
M-F - 8:00 am - 12:00 pm
M-F - 1:00 pm - 5:00 pm

Prerequisite

ECE604, or a graduate course in electromagnetics

Text:

C. A. Balanis, *Antenna Theory: Analysis and Design*, 3rd. ed., Wiley, 2005

Grading

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|-------------|------------------|
| Homework: | 25 points |
| Midterm: | 100 points |
| Final: | 200 points |
| <hr/> Total | <hr/> 325 points |

Notes Regarding Midterm and Final Exams

- A formula sheet (8.5" × 11", one side) is allowed.
- Calculators and computers are not permitted.
- The final will be comprehensive.

Dates for Midterm and Final Exams

Midterm Exam: Thursday, March 26, 2015 - class time, FRNY B124
Final Exam:

Syllabus

| | Topic | Text Sections | Weeks |
|-----|---|---------------|-------|
| 1. | Maxwell's equations and fundamental EM concepts | | 2 |
| 2. | Antenna fundamentals and parameters | 2 | 2 |
| 3. | Radiation integrals | 3 | 2 |
| 4. | Wire antennas | 4, 5 | 1 |
| 5. | Arrays | 6, 7 | 2 |
| 6. | Numerical modeling | 8 | 1 |
| 7. | Broadband antennas | 9-11 | 1 |
| 8. | Aperture antennas | 12, 13 , 15 | 1 |
| 9. | Conformal antennas | 14 | 1 |
| 10. | Antenna measurements | 16 | 1 |

References

1. R. E. Collin, Antennas and Radiowave Propagation, McGraw-Hill, 1985
2. J. D. Kraus, Antennas, 2nd. ed., McGraw-Hill, 1988
3. R. F. Harrington, Time Harmonic Electromagnetic Fields, McGraw-Hill, 1962
4. E. C. Jordan and K. A. Balmain, Electromagnetic Waves and Radiating Systems, 2nd. ed., Prentice Hall, 1968
5. S. Ramo, J. R. Whinnery and T. Van Duzer, Fields and Waves in Communication Electronics, 3rd. ed., Wiley, 1994
6. R. S. Elliott, Antenna Theory and Design, Prentice Hall, 1981
7. W. L. Stutzman and G. A. Thiele, Antenna Theory and Design, Wiley, 1981
8. W. Panofsky and M. Phillips, Classical Electricity and Magnetism, Addison-Wesley, 1962
9. J. D. Jackson, Classical Electrodynamics, 3rd. ed., Wiley, 1999
10. J. A. Stratton, Electromagnetic Theory, McGraw-Hill, 1941