EEL 4473/5486 – Fall 2021

ELECTROMAGNETIC FIELDS AND APPLICATIONS II
Adapted for COVID

Instructor: Dr. Henry Zmuda,
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Office Hours: Thursdays 3 – 4 pm or by appointment

Class Web Page: On Canvas

Meeting Times: Tuesday 3:00 – 4:55, Thursday 4:05 – 4:55

Zoom ID: **953 7424 1718**

Passcode: **photon**

Text: TBA

Course Topics:

1. Review of Maxwell's Equations for Time-Varying Fields
    a. The Wave Equation
    b. Solutions to the wave equation
2. Plane Wave Propagation and Polarization
   (Test 1)
3. Wave Reflection and Transmission
4. Waveguides (Rectangular & Circular)
   (Test 2)
5. Radiation and Antennas
    a. Fundamentals of electromagnetic radiation
    b. Dipole and loop antennas
    c. Theorems and definitions
    d. Antenna arrays
    e. Plane wave decomposition
6. Additional Topics Based on Class Interest. These can include:
    a. Fiber Optics
    b. Microwave Network Theory
    c. Electromagnetic Scattering

   (Test 3)

Grading Policy:

Homework: Homework is assigned from the text but not collected. Additional homework may be assigned in class. Computer programming may be required.

Quizzes (40%): Given approximately on a weekly basis. Quizzes are closed-note, closed-book, and no-calculator unless otherwise stated. Quizzes are based on class material, the text, and the homework.

Tests (60%): Three in-class tests. Dates TBD.

Final Exam: None.

There is a zero tolerance policy for cheating. University guidelines for academic honesty must be adhered to 100%.

A ≥ 90%	A – ≥ 86.67%	
B+ ≥ 83.33%	B ≥ 80%	B – ≥76.67%
C+ ≥ 73.33%	C ≥ 70%	C – ≥ 66.67%
D+ ≥ 63.33%	D ≥ 60%	D – ≥ 56.67%

$E < 56.67\%$