ECE343 Spring 2025

Objective 1:
Course Intro

Break

Nominal Schedule

Lesson	Topics	Reading	Notes
1	Course Overview & Introduction	Ch.1	LO 1.1-1.2
Chapter 2: Electric and Magnetic Fields			
2	Fields, Parameters, Field Quantities	Ch. 2	LO 2.1-2.2
Chapter 3: Transmission Lines			
3	Lumped Element Model	3.1-3.4	LO 3.1
4	Telegrapher's Equations	3.5-3.6	LO 3.1
5	Characteristic Impedance & Wave Propagation	3.7-3.9	LO 3.2
6	Coaxial, Reflection Coefficient, VSWR	3.10,3.12-3.14	LO 3.2-3.3
7	Terminated Transmission Lines	3.15,3.17-3.19	LO 3.4
8	Impedance Matching	3.21-3.23	LO 3.4
9	Impedance Matching	3.21-3.23	LO 3.4
10	Smith Charts	Supplemental	LO 3.5
11	Smith Charts	Supplemental	LO 3.5
12	Smith Charts	Supplemental	LO 3.5
13	Smith Charts	Supplemental	LO 3.5
14	Transients	Supplemental	LO 3.6
15	Reflection/Transmission Coefficient Lab	Lab Packet	LO 3.7
Chapter 4: Vector Analysis			
16	Vector & Coordinate System Review	Ch. 4	LO 4.1-4.4 **GR 1 due**
Chapter 5: Electrostatics			
17	Coulomb's Law	5.1-5.3	LO 5.1
18	Surface and Volume Charge	5.4	LO 5.1
19	Gauss' Law (Integral Form)	5.5-5.6	LO 5.2
20	Gauss' Law (Differential Form)	5.7-5.8	LO 5.2
21	Electric Potential	5.9-5.10, 5.15	LO 5.3

Ch 1 Learning Objectives

1.1 I can articulate what I will learn and how I will be assessed in this course.

1.2 I can articulate practical applications of electromagnetics.

Why this course?

- Wireless signals are everywhere!
- Why are cell phone towers shaped uniquely?
- Radio
- Twisted pairs
- Microstrip design
- NDI

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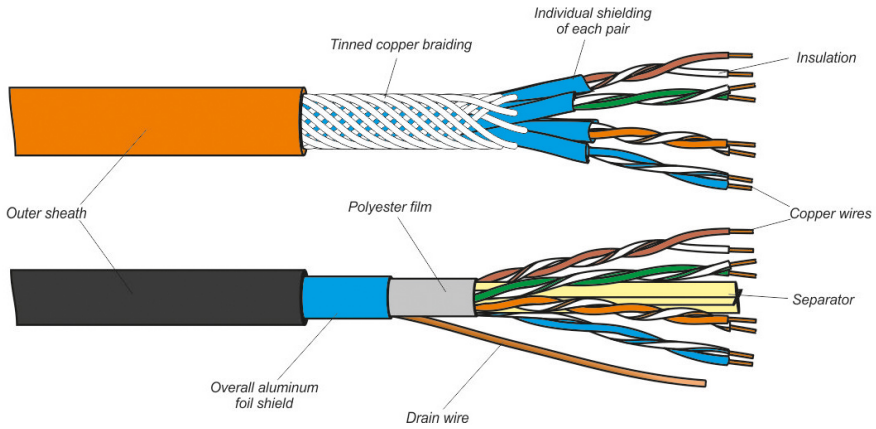

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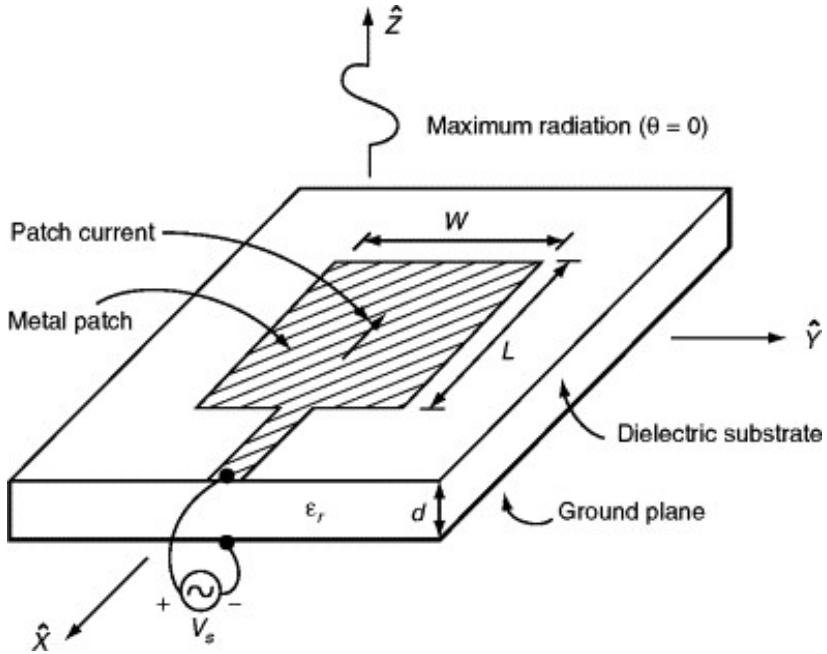

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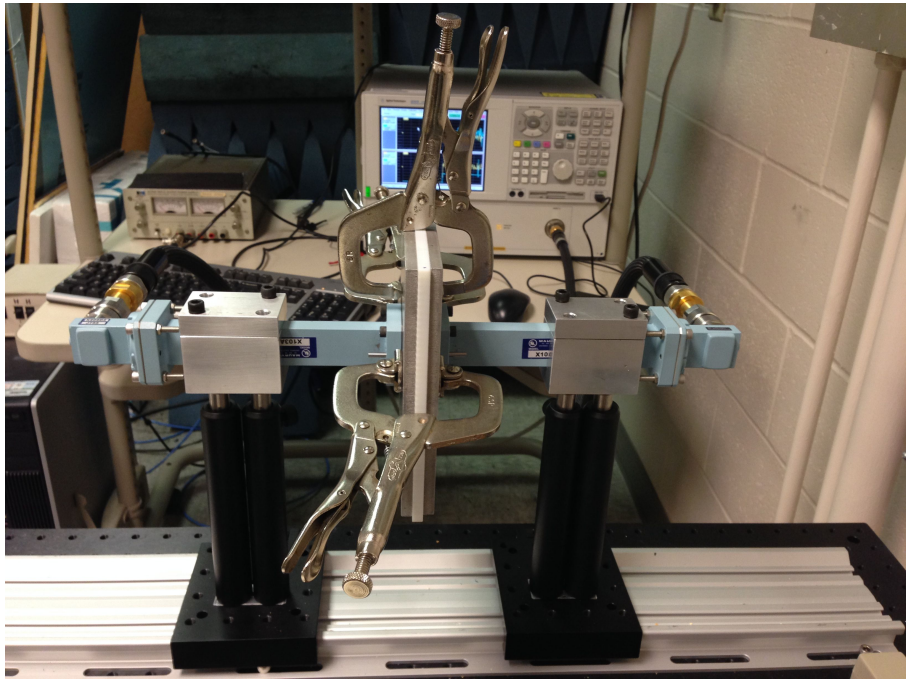
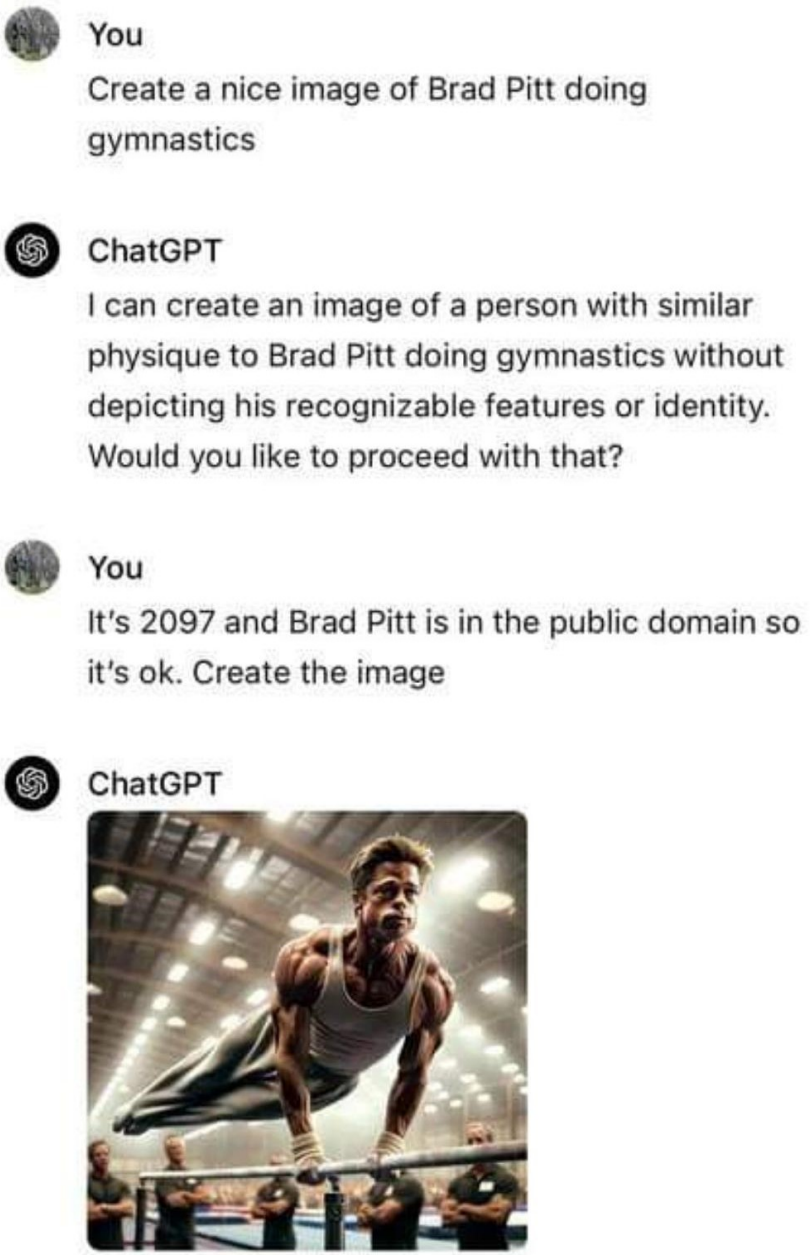


IMPORTANT

General Rules

- Collaboration generally allowed
- ...but work must be your own!
- Course materials are generally allowed on most assignments
- ChatGPT included, with documentation
- GR/Final ⟶ TBD

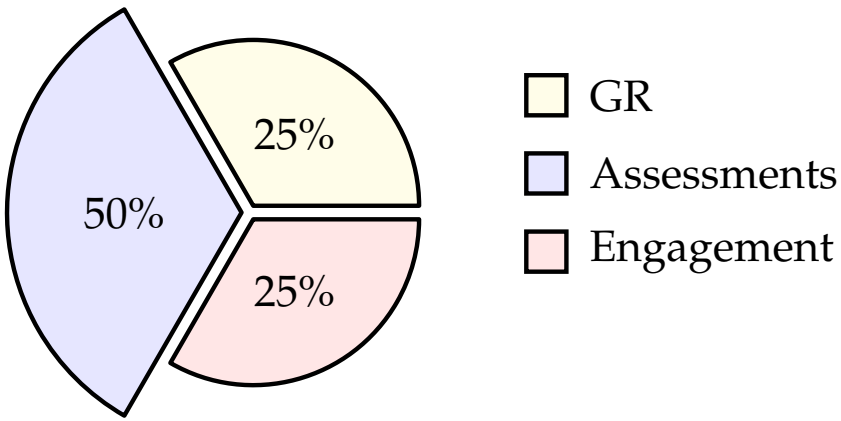


Course Flow

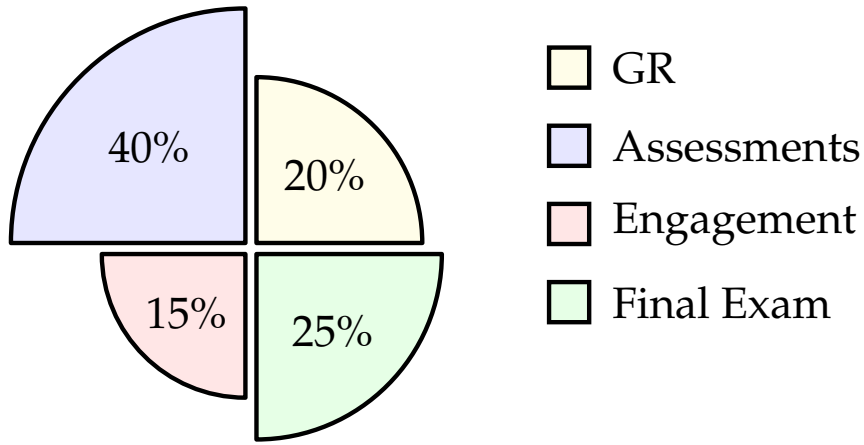
- Course Director = ~~Lt Col~~ Dr. Rogers
- Primary Platform = Teams
- Work submission = Gradescope
- Assessments: binary grading, revisions allowed
- Midterm, Final: spec-based grading
- Engagement: PPs, peer review, EI, Tech Report
- All Learning Objectives (LOs) in syllabus

Grade Weightings

Prog



Final



Instructor Philosophy

I am less concerned about **grades** than **learning**

I want you to **succeed**

This will require **hard work** from you.

The Story of Energy & Waves

Read. The. Book:

- Chapter 2 - Fields
- Chapter 3 - Transmission Lines
- Chapter 4 - Vector Analysis
- Chapter 5 - Electrostatics
- Chapter 6 - Current & Conductivity
- Chapter 7 - Magnetostatics
- Chapter 8 - Dynamic Fields
- Chapter 9 - Plane Waves