Queen's University
Faculty of Engineering and Applied Science
Engineering Physics

ENPH 239: Design & Analysis

Winter 2026 Lecture Notes

Patrick

January 5, 2026

Contents

Course Overview & Syllabus

Key Information

- **Instructor:** Guillaume Giroux, PhD
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- **Office Hours:** TBA
- **TA:** Paul Hughes (paul.hughes@queensu.ca)

Course Description

The experimental basis and mathematical description of electrostatics, magnetostatics and electromagnetic induction, together with a discussion of the properties of dielectrics and ferromagnetics, are presented. Both the integral and vector forms of Maxwell's equations are deduced.

Grading Scheme

Activity	**Weight**	**Key Dates**
Math Post-diagnostics	5%	Due Jan 16, 23:59
Weekly Quizzes (12)	15%	Fridays, 23:59
Assignments (3)	40%	Weeks 5, 8, 11 (Fridays)
Final Exam	40%	Exam Period

Textbook

Required: *Introduction to Electrodynamics*, David J. Griffiths (4th or 5th ed.)

Schedule Overview

- **Weeks 1-2:** Electrostatics (Ch 1-2)

- **Weeks 3-5:** Potentials (Ch 3) & Electric Fields in Matter (Ch 4)
- **Weeks 6-7:** Electric Fields in Matter (Ch 4)
- **Weeks 8-9:** Magnetostatics (Ch 5)
- **Weeks 10:** Magnetic Fields in Matter (Ch 6)
- **Weeks 11-12:** Electrodynamics (Ch 7)

This is where we ended on First Day

1 Week 1

1.1 Lecture 1: Intro to ODEs

Introduction to Ordinary Differential Equations.

1.2 Lecture 2: First Order ODEs

Discussion on first order differential equations.