

**BASIC INFORMATION****Instructor:**

Md Faruk Hossain

Doctoral Graduate Teaching Assistant

Dept. of Physics, NDSU

**Email:** [mdfaruk.hossain.2@ndsu.edu](mailto:mdfaruk.hossain.2@ndsu.edu)**Phone:** 7017296388**Office:** 318B, South Engineering, NDSU**Classes:** MoTuWeTh; 11:00AM -  
12:50PM; AGHILL CTR Building, Rm  
300**Help:** on demand (in-person/Zoom)**BULLETIN DESCRIPTION**

Electric charge, field, potential, and current; magnetic field; capacitance; resistance; inductance; RC, RL, LC and RLC circuits; waves; optics

Prerequisite: PHYS 251 or ME 222, Corequisite: MATH 166

**COURSE OBJECTIVES**

After completing this course, you should be able to: • Explain concepts in electricity, magnetism, wave, and optics • Demonstrate the ability to analyze and solve conceptual and practical problems • Construct quantitative models and descriptive predictions of physical behavior

**REQUIRED STUDENT RESOURCES**

- **Optional textbook:** “University Physics with Modern Physics”, 13th Edition by Hugh D. Young, Roger A. Freedman,
- Scientific calculator

**HOMEWORK ASSIGNMENTS**

Weekly homework will be posted on Blackboard.

All homework assignments are due on the dates specified.

## **COURSE SCHEDULE/OUTLINE/CALENDAR OF EVENTS**

Week(s)	Topic(s)	Reading /Assignment
1	Electric Charge and Electric Field, Gauss's Law	Chapters 21, 22
2	Gauss's Law; Electric Potential	Chapters 22, 23
3	Electric Potential; Capacitance and Dielectrics	Chapter 23, 24
4	Current, Resistance, and Electromotive Force; Direct-Current Circuits	Chapters 25, 26
5	Magnetic Field and Magnetic Forces; Sources of Magnetic Field	Chapters 27,28
6	Electromagnetic Induction; Inductance; Alternating Current	Chapters 29, 30, 31
7	Electromagnetic Waves, The Nature and Propagation of Light; Geometric Optics	Chapters 32, 33, 34
8	Interference; Diffraction	Chapters 35, 36

## **EVALUATION PROCEDURES AND GRADING CRITERIA**

Final letter grades for the course will be computed using the following weights:

- Homework Assignment: 40%
- Four Exams: 20%+20%+20%+20% ((The least grade will be dropped. So 3 exams will be counted for final grading: 60%)

### **NO MAKEUP EXAMS ARE ALLOWED**

Grades: A: > 90 %, B: 80 to < 90%, C: 70 to < 80 %, D: 60 to < 70%, F: < 60 %

## **Exam Schedules:**

Exams	Exam type	Chapters	Date
1	Written (20%)	21,22,23,24	July 1 (Monday)
2	Written (20%)	25,26	July 11 (Thursday)
3	Presentation (20%)	Specific Topics	July 29 (Monday)
4	Oral (20%)	All chapters	August 1 (Thursday)