



**COURSE SYLLABUS
AND
INSTRUCTOR PLAN**

**University Physics II
PHYS 2426 001**

Dr. Bernard Smith

NOTE: This is a 16-week course.
NOTE: This is a Face-to-Face course.

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Course Description:

This course is designed to provide students with a calculus based, laboratory-oriented approach to the study of electricity and magnetism and wave mechanics. This course is designed for pre-engineering, physics, mathematics, and chemistry majors.

Prerequisites and/or Corequisites:

MATH 2414 (Calculus II) and PHYS 2425 (Principles of Physics I).

Instructor Information:

Instructor Name:	Dr. Bernard Smith
MCC Email:	bsmith@mclennan.edu
Office Phone Number:	(254) 299-8196
Office Location:	SB 210
Office/Teacher Conference Hours:	MW 1-3PM. Other times by appointment.

Required Text & Materials:

- Physics for Scientists and Engineers with Modern Physics, 4th Edition
Douglas C. Giancoli
- Mastering Physics Student Access Kit
- A “scientific” calculator: This means something that can handle exponents, trig functions, hyperbolic trig functions, and logarithms.

MCC Bookstore Website: <http://www.mclennan.edu/bookstore/>

Methods of Teaching and Learning:

Students will learn through lecture and reading, as well as through work on homework, labs, and exams. Additional methods may be used as opportunities present themselves.

Course Objectives and/or Competencies:

1. Articulate the fundamental concepts of electricity and electromagnetism, including electrostatic potential energy, electrostatic potential, potential difference, magnetic field, induction, and Maxwell’s Laws.
2. State the general nature of electrical forces and electrical charges, and their relationship to electrical current.
3. Solve problems involving the inter-relationship of electrical charges, electrical forces, and electrical fields.
4. Apply Kirchhoff’s Laws to analysis of circuits with potential sources, capacitance, and resistance, including parallel and series capacitance and resistance.
5. Calculate the force on a charged particle between the plates of a parallel-plate capacitor.
6. Apply Ohm’s law to the solutions of problems.
7. Describe the effects of static charge on nearby materials in terms of Coulomb’s Law.
8. Use Faraday’s and Lenz’s laws to find the electromotive forces.
9. Describe the components of a wave and relate those components to mechanical vibrations, sound, and decibel level.
10. Articulate the principles of reflection, refraction, diffraction, interference, and superposition of waves.

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11. Solve real-world problems involving optics, lenses, and mirrors.
12. Prepare laboratory reports that clearly communicate experimental information in a logical and scientific manner.
13. Conduct basic laboratory experiments involving electricity and magnetism.
14. Relate physical observations and measurements involving electricity and magnetism to theoretical principles.
15. Evaluate the accuracy of physical measurements and the potential sources of error in the measurements.
16. Design fundamental experiments involving principles of electricity and magnetism.
17. Identify appropriate sources of information for conducting laboratory experiments involving electricity and magnetism.

CORE OBJECTIVES – LIFE AND PHYSICAL SCIENCES: Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.

- A. Critical Thinking Skills - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information. These will be assessed through lecture exams, problems assigned for homework, and/or laboratory exercises.
- B. Communication Skills - to include effective development, interpretation and expression of ideas through written, oral and visual communication. These will be assessed by presentations and/or reports based on laboratories, problems, and/or research.
- C. Empirical and Quantitative Skills - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions. These will be assessed through lecture exams, problems assigned for homework, and/or laboratory exercises.
- D. Teamwork - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal. This will be evaluated through group discussions, group laboratory projects, and/or through group presentations.

Course Attendance/Participation Guidelines:

If a student is not in attendance in accordance with the policies/guidelines of the class as outlined in the course syllabus as of the course census date, faculty are required to drop students from their class roster prior to certifying the respective class roster. A student's financial aid will be re-evaluated accordingly and the student will only receive funding for those courses attended as of the course census date.

Before the 60% point of the semester, a student who is absent for 25% or more of a face-to-face or blended course or who misses 25% or more of assigned work for an online course will be withdrawn from the course with a grade of W. A student may also request to be withdrawn with a grade of W before the 60% point of the semester. After the 60% point of the semester, the student may request to be withdrawn if the student is passing, or be assigned the final grade earned at the end of the semester after grades have been updated to reflect missing work.

Since this is a face-to-face course, attendance will be determined by physical presence in class. The **course census date** is **9/6/23**. If you have not attended the course by **11:59PM on 9/5/23**, you will be dropped for non-participation. This is a drop not a withdrawal.

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After the census date (9/6/23), if you have missed 7 classes in total before the 60% mark (10/23/23), you will be withdrawn from the class and get a “W”. After the 60% mark if you are passing the course, you may request to be withdrawn with a “W”. Otherwise, you will receive a grade of “F” at the end of the course.

Course Outline:

This course will encompass the following material to be divided into three sections. Objectives 12-17 are covered in laboratory. Core Objectives are covered throughout the entire semester.

Chapter 14 – Oscillations	Chapter 24 – Capacitance, Dielectrics, Electric Energy Storage
Chapter 15 – Wave Motion	Chapter 25 – Electric Currents and Resistance
Chapter 16 – Sound	Chapter 26 – DC Circuits
Chapter 34 – The Wave Nature of Light; Interference	Chapter 27 – Magnetism
Chapter 35 – Diffraction and Polarization	Chapter 28 – Sources of Magnetic Field
Chapter 32 – Light; Reflection and Refraction	Chapter 29 – Electromagnetic Induction and Faraday’s Law
Chapter 33 – Lenses and Optical Instruments	Chapter 30 – Inductance, Electromagnetic Oscillations, and AC Circuits
Chapter 21 – Electrical Charge and Electric Field	Chapter 31 – Maxwell’s Equations and Electromagnetic Waves
Chapter 22 – Gauss’ Law	
Chapter 23 – Electric Potential	

Course Grading Information:

Homework	20%	Lab	20%
Exams (3)	40%	Final Exam	20%

Homework: Homework assignments are conceptual exercises meant to enhance and test your knowledge of the reading material and involved numeric problems designed to challenge you to gain a deeper understanding of the course material. Homework will be turned in and graded utilizing Mastering Physics.

Lab: The lab grades will consist of problems completed in class and lab reports to be written outside of class.

Exams: There will be three major exams during the semester. Exam questions will come from the material covered in class, the textbook, and laboratory exercises.

Final Exam: The final exam is comprehensive and has the same format as the other exams.

Late Work, Attendance, and Make Up Work Policies:

Homework: Students lose 2% credit per hour for problems completed after the due date and time on Mastering Physics. Student absences have no effect on the due date and time.

Lab: Lab work has the same policy as homework.

Exams: Unless there is a college approved, documented excused absence no major exam may be made up. Any unexcused absence for an exam will result in a grade of zero for that exam.

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Final Exam: The final exam is required for all students. Unless there is a college approved, documented excused absence the final exam may not be made up. Any unexcused absence for the final exam will result in a grade of zero for that exam.

Student Behavioral Expectations or Conduct Policy:

Students are expected to maintain classroom decorum that includes respect for other students and the instructor, prompt and regular attendance, and an attitude that seeks to take full advantage of the education opportunity.

[Click Here for the MCC Academic Integrity Statement:](#)

(www.mclennan.edu/academic-integrity)

The link above will provide you with information about academic integrity, dishonesty, and cheating.

[Click Here for the MCC Attendance/Absences Policy](#)

(<https://www.mclennan.edu/highlander-guide/policies.html>)

Click on the link above for the college policies on attendance and absences. Your instructor may have additional guidelines specific to this course.

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ACADEMIC RESOURCES/POLICIES

Accommodations/ADA Statement:

Any student who is a qualified individual with a disability may request reasonable accommodations to assist with providing equal access to educational opportunities. Students should contact the Accommodations Coordinator as soon as possible to provide documentation and make necessary arrangements. Once that process is completed, appropriate verification will be provided to the student and instructor. Please note that instructors are not required to provide classroom accommodations to students until appropriate verification has been provided by the Accommodations Coordinator. For additional information, please visit www.mclennan.edu/disability.

Students with questions or who require assistance with disabilities involving physical, classroom, or testing accommodations should contact:

disabilities@mclennan.edu 2542998122 Room
319, Student Services Center

Title IX:

We care about your safety, and value an environment where students and instructors can successfully teach and learn together. If you or someone you know experiences unwelcomed behavior, we are here to help. Individuals who would like to report an incident of sexual misconduct are encouraged to immediately contact the acting Title IX Coordinator at titleix@mclennan.edu or by calling, Dr. Claudette Jackson, (Accommodations/Title IX) at (254) 299-8465. MCC employees are mandatory reporters and must report incidents immediately to the Title IX Coordinator. Individuals may also contact the MCC Police Department at (254) 299-8911 or the MCC Student Counseling Center at (254) 299-8210. The MCC Student Counseling Center is a

confidential resource for students. Any student or employee may report sexual harassment anonymously by visiting <http://www.lighthouse-services.com/mclennan/>. Go to McLennan's Title IX webpage at www.mclennan.edu/titleix/. It contains more information about definitions, reporting, confidentiality, resources, and what to do if you or someone you know is a victim of sexual misconduct, gender-based violence or the crimes of rape, acquaintance rape, sexual assault, sexual harassment, stalking, dating violence, or domestic violence.

Student Support/Resources:

MCC provides a variety of services to support student success in the classroom and in your academic pursuits to include counseling, tutors, technology help desk, advising, financial aid, etc. A listing of these and the many other services available to our students is available at <http://www.mclennan.edu/campus-resource-guide/>

Academic Support and Tutoring is here to help students with all their course-related needs. Specializing in one-on-one tutoring, developing study skills, and effectively writing essays. Academic Support and Tutoring can be found in the Library and main floor of the Learning Commons. This service is available to students in person or through Zoom. You can contact the Academic Support and Tutoring team via Zoom or email (ast@mclennan.edu) by going to our website (<https://www.mclennan.edu/academic-support-and-tutoring/>).

College personnel recognize that food, housing, and transportation are essential for student success. If you are having trouble securing these resources or want to explore strategies for balancing life and school, we encourage you to contact either MCC CREW – Campus Resources Education Web by calling (254) 299-8561 or by emailing crew@mclennan.edu or a Success Coach by calling (254) 299-8226 or emailing SuccessCoach@mclennan.edu. Both are located in the Completion Center located on the second floor of the Student Services Center (SSC) which is open Monday-Friday from 8 a.m.-5 p.m.

Paulanne's Pantry (MCC's food pantry) provides free food by appointment to students, faculty and staff. To schedule an appointment, go to https://mclennan.co1.qualtrics.com/jfe/form/SV_07byXd7eB8iTqJg. Both the Completion Center and Paulanne's Pantry are located on the second floor of the Student Services Center (SSC).

MCC Foundation Emergency Grant Fund:

Unanticipated expenses, such as car repairs, medical bills, housing, or job loss can affect us all. Should an unexpected expense arise, the MCC Foundation has an emergency grant fund that may be able to assist you. Please go to <https://www.mclennan.edu/foundation/scholarships-and-resources/emergencygrant.html> to find out more about the emergency grant. The application can be found at https://www.mclennan.edu/foundation/docs/Emergency_Grant_Application.pdf.

MCC Academic Integrity Statement:

Go to www.mclennan.edu/academic-integrity for information about academic integrity, dishonesty, and cheating. The unauthorized use of artificial intelligence (AI) for classwork can be a violation of the College's General Conduct Policy. Whether AI is authorized in a course and the parameters in which AI can be used in a course will be outlined by each instructor.

Minimum System Requirements to Utilize MCC's D2L|Brightspace:

Go to <https://www.mclennan.edu/center-for-teachingandlearning/FacultyandStaffCommons/requirements.html> for information on the minimum system requirements needed to reliably access your courses in MCC's D2L|Brightspace learning management system.

Minimum Technical Skills:

Students should have basic computer skills, knowledge of word processing software, and a basic understanding of how to use search engines and common web browsers.

Backup Plan for Technology:

In the event MCC's technology systems are down, you will be notified via your MCC student email address. Please note that all assignments and activities will be due on the date specified in the Instructor Plan, unless otherwise noted by the instructor.

Email Policy:

McLennan Community College would like to remind you of the policy (<http://www.mclennan.edu/employees/policy-manual/docs/E-XXXI-B.pdf>) regarding college email. All students, faculty, and staff are encouraged to use their McLennan email addresses when conducting college business.

A student's McLennan email address is the preferred email address that college employees should use for official college information or business. Students are

expected to read and, if needed, respond in a timely manner to college emails. For more information about your student email account, go to www.mclennan.edu/studentemail.

Instructional Uses of Email:

Faculty members can determine classroom use of email or electronic communications. Faculty should expect and encourage students to check the college email on a regular basis. Faculty should inform students in the course syllabus if another communication method is to be used and of any special or unusual expectations for electronic communications.

If a faculty member prefers not to communicate by email with their students, it should be reflected in the course syllabus and information should be provided for the preferred form of communication.

Email on Mobile Devices:

The College recommends that you set up your mobile device to receive McLennan emails. If you need assistance with set-up, you may email Helpdesk@mclennan.edu for help.

You can find help on the McLennan website about connecting your McLennan email account to your mobile device:

- [Email Setup for iPhones and iPads](#)
- [Email Setup for Androids](#)

Forwarding Emails:

You may forward emails that come to your McLennan address to alternate email addresses; however, the College will not be held responsible for emails forwarded to an alternate address that may be lost or placed in junk or spam filters.

For more helpful information about technology at MCC, go to [MCC's Tech Support Cheat Sheet](#) or email helpdesk@mclennan.edu.

Disclaimer:

The resources and policies listed above are merely for informational purposes and are subject to change without notice or obligation. The College reserves the right to change policies and other requirements in compliance with State and Federal laws. The provisions of this document do not constitute a contract.