



PHYS 1402.089 – General Physics II Course

Syllabus: Summer 2018

“Northeast Texas Community College exists to provide responsible, exemplary learning opportunities.”

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Office Hours	Monday	Tuesday	Wednesday	Thursday	Friday
	2:00 – 5:00	2:00 – 5:00	2:00 – 5:00	2:00 – 5:00	N/A

The information contained in this syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.

Catalog Course Description (include prerequisites): 4 credit hours.

Lecture/Lab/Clinical: Three hours of lecture and three hours of lab each week.

Prerequisite: PHYS 1401

Fundamental principles of physics, using algebra and trigonometry; the principles and applications of electricity and magnetism, including circuits, electrostatics, electromagnetism, waves, sound, light, optics, and modern physics topics; with emphasis on problem solving.

Required Textbook(s): Walker. *University Physics*, 5th ed.

Publisher: Pearson

ISBN Number: 9780134019727

Recommended Reading(s):

The Cartoon Guide to Physics, by Larry Gonick and Art Huffman

** This book will not be referenced in class, but can serve as a convenient, alternate explanation for difficult concepts.

Student Learning Outcomes:

Upon successful completion of this course, students will:

- 1402.1 Solve problems involving the inter-relationship of fundamental charged particles and electrical forces, fields, and currents.
 - 1402.2 Apply Kirchhoff's Rules to analysis of circuits with potential sources, capacitance, inductance, and resistance, including parallel and series capacitance and resistance.
 - 1402.3 Solve problems involving the effects of magnetic fields on moving charges or currents, and the relationship of magnetic fields to the currents which produce them.
 - 1402.4 Use Faraday's and Lenz's Laws to determine electromotive forces and solve problems involving electromagnetic induction.
 - 1402.5 Articulate the principles of reflection, refraction, diffraction, interference, and superposition of waves.
 - 1402.6 Describe the characteristics of light and the electromagnetic spectrum.
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- 1402L.1 Prepare laboratory reports that clearly communicate experimental information in a logical and scientific manner and evaluate the accuracy of physical measurements and potential sources of error in measurements.
 - 1402L.2 Relate physical observations and measurements involving electricity and magnetism to theoretical principles.

Recommended Reading(s):

The Cartoon Guide to Physics, by Larry Gonick and Art Huffman

** This book will not be referenced in class, but can serve as a convenient, alternate explanation for difficult concepts.

Core Curriculum Purpose and Objectives:

Through the core curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world; develop principles of personal and social responsibility for living in a diverse world; and advance intellectual and practical skills that are essential for all learning.

Courses in the foundation area of mathematics focus on quantitative literacy in logic, patterns, and relationships. In addition, these courses involve the understanding of key mathematical concepts and the application of appropriate quantitative tools to everyday experience.

College Student Learning Outcomes:

Critical Thinking Skills

CT.1 Students will demonstrate the ability to 1) analyze complex issues, 2) synthesize information, and 3) evaluate the logic, validity, and relevance of data.

Communication Skills

CS.1 Students will effectively develop, interpret and express ideas through written communication.

Empirical and Quantitative Skills

EQS.1 Students will manipulate numerical data or observable facts by organizing and converting relevant information into mathematical or empirical form

EQS.2 Students will analyze numerical data or observable facts by processing information with correct calculations, explicit notations, and appropriate technology.

EQS.3 Students will draw informed conclusions from numerical data or observable facts that are accurate, complete, and relevant to the investigation.

Teamwork

TW.2 Students will work with others to support and accomplish a shared goal.

SCANS Skills:

N/A

Course Outline:

Chapter 19 – Electric Charges, Forces, and Fields

Chapter 20 – Electric Potential and Electric Potential Energy

Chapter 21 – Electric Current and Direct-Current Circuits

Chapter 22 – Magnetism

Chapter 23 – Magnetic Flux and Faraday's Law of Induction

Chapter 24 – Alternating-Current Circuits

Chapter 25 – Electromagnetic Waves

Chapter 26 – Geometrical Optics

Chapter 27 – Optical Instruments

Chapter 28 – Physical Optics: Interference and Diffraction

Evaluation/Grading Policy:

Homework:	20%
Labs:	20%
Exams:	60%

Tests/Exams:

TEST 1 (Electrostatics) : Chapters 19-21
TEST 2 (Magnetism) : Chapters 22-24
TEST 3 (Electromagnetism and Light): Chapters 25-28
FINAL EXAM Chapters 19-28 Final will be comprehensive

Lab Policies

1. All students are expected to report to lab on time, prepared to begin.
2. One lab each month will require a fully written, comprehensive, and cohesive report on the procedure and observations of the lab. The report is expected to have an abstract, procedure, observations, and conclusions sections at the minimum. The instructor will inform the class of which lab will require the report.
3. Labs not requiring a report will still require proof of completion, typically a sheet showing recorded data from the lab activities.
4. Students are expected to remain in the lab classroom for the full lab time. You are encouraged to experiment on your own. However, given the sensitive nature of most of the equipment, you are required to ask the instructor for permission before trying anything off the books.

Other Course Policies:

- Homework will be assigned at the beginning of the first lecture covering relevant topics. It is up to the student to keep up with the homework as the lecture days progress.

Student Responsibilities/Expectations:

Meeting course deadlines are the responsibility of the student, because this is an online class and there is much material to cover, it is advised that each student work *ahead* of the official order of assignments. Any assignment not submitted by the due date will receive a grade of "0". Also, all students are expected to be courteous in online correspondence.

NTCC Academic Honesty Statement:

"Students are expected to complete course work in an honest manner, using their intellects and resources designated as allowable by the course instructor. Students are responsible for addressing questions about allowable resources with the course instructor. NTCC upholds the highest standards of academic integrity. This course will follow the NTCC Academic Honesty policy stated in the Student Handbook."

Academic Ethics

The college expects all students to engage in academic pursuits in a manner that is beyond reproach. Students are expected to maintain complete honesty and integrity in their academic pursuit. Academic dishonesty such as cheating, plagiarism, and collusion is unacceptable and may result in disciplinary action. Refer to the student handbook for more information on this subject.

ADA Statement:

It is the policy of NTCC to provide reasonable accommodations for qualified individuals who are students with disabilities. This College will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to request accommodations. An appointment can be made with Shannin Garrett, Academic Advisor/Coordinator of Special Populations located in the College Connection. She can be reached at 903-434-8218. For more information and to obtain a copy of the Request for Accommodations, please refer to the [NTCC website – Special Populations](#).

Family Educational Rights and Privacy Act (FERPA):

The Family Educational Rights and Privacy Act (FERPA) is a federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. FERPA gives parents certain rights with respect to their children's educational records. These rights transfer to the student when he or she attends a school beyond the high school level. Students to whom the rights have transferred are considered "eligible students." In essence, a parent has no legal right to obtain information concerning the child's college records without the written consent of the student. In compliance with FERPA, information classified as "directory information" may be released to the general public without the written consent of the student unless the student makes a request in writing. Directory information is defined as: the student's name, permanent address and/or local address, telephone listing, dates of attendance, most recent previous education institution attended, other information including major, field of study, degrees, awards received, and participation in officially recognized activities/sports.