General Physics I 1401.42D HY

Course Syllabus: Fall 2020

"Northeast Texas Community College exists to provide personal, dynamic learning experiences empowering students to succeed."

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	Monday	Tuesday	Wednesday	Thursday	Friday	Online
Office Hours	7:15-8:00 4:00-4:15	7:15-8:00 4:00-4:15	7:15-8:00 4:00-4:15	7:15-8:00 4:00-4:15	7:15-8:00 4:00-4:15	

This syllabus serves as the documentation for all course policies and requirements, assignments, and instructor/student responsibilities.

Information relative to the delivery of the content contained in this syllabus is subject to change. Should that happen, the student will be notified.

Course Description: This course includes fundamental principles of physics, using algebra and trigonometry; the principles and applications of classical mechanics and thermodynamics, including harmonic motion, mechanical waves and sound, physical systems, Newton's Laws of Motion, and gravitation and other fundamental forces; with emphasis on problem solving. Four hours of college credit.

Prerequisite(s): MATH 2412 or equivalent

Student Learning Outcomes:

1401.1 Determine the components of linear motion (displacement, velocity, and acceleration), and especially motion under conditions of constant acceleration.

1401.2 Apply Newton's Laws of Motion to physical problems including gravity.

1401.3 Solve problems using principles of energy.

1401.4 Use principles of impulse and linear momentum to solve problems.

1401.5 Solve problems in rotational kinematics and dynamics, including the determination of the location of the center of mass and center of rotation for rigid bodies in motion.

1401.6 Solve problems involving rotational and linear motion.

1401.7 Describe the components of a wave and relate those components to mechanical vibrations, sound, and decibel level.

1401.8 Demonstrate an understanding of equilibrium, including the different types of equilibrium.

1401.9 Discuss simple harmonic motion and its application to quantitative problems or qualitative questions.

1401.10 Solve problems using the principles of heat and thermodynamics.

1401.11 Solve basic fluid mechanics problems.

1401.L1 Demonstrate techniques to set up and perform experiments, collect data from those experiments, and formulate conclusions from an experiment.

1401.L2 Record experimental work completely and accurately in laboratory notebooks, and communicate experimental results clearly in written results.

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

Program 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.

Evaluation/Grading Policy:

Homework and laboratory work will represent 25% of your grade. There will be 4 Unit Exams and a comprehensive Final Exam. The average of the tests will represent 75% of your grade. The letter grading system is: A (90-100%), B (80-89%), C (70-79%), D (60-69%), F (0-59%).

Required Instructional Materials:

Face to face students: Students will be provided with a hard copy of the textbook Serway and Vuille, *College Physics*, Tenth Edition, Cengage Learning, Stamford, CT, 2015.

Online students: This course will utilize Webassign online resources for homework and exams. Access to the assignments and the electronic copy of the textbook Serway and Vuille, *College Physics*, Tenth Edition, Cengage Learning, Stamford, CT, 2015 is provided by access to Webassign on the internet.

Publisher: Cengage Learning **ISBN Number: :** 978-1-285-73702-7

Optional Instructional Materials: None

Minimum Technology Requirements:

Calculator – You will need a scienctific calculator or graphing calculator for this course.

Required Computer Literacy Skills: Ability to navigate the internet.

Course Structure and Overview:

The course is divided into five units with individual exams covering the first four units as shown below. The material from the fifth unit is included on the comprehensive final exam.

Chapter 1: Introduction and Mathematical Concepts
Chapter 2: Kinematics in One Dimension
Chapter 3: Kinematics in Two Dimensions
Exam 1

Chapter 4: Forces and Newton's Laws of Motion
Chapter 7: Rotational Motion and the Law of Gravity
Exam 2

Chapter 5: Energy / Chapter 13: Vibrations and Waves
Chapter 6: Momentum and Collisions
Exam 3

Chapter 9: Solids and Fluids
Chapter 10: Thermal Physics
Chapter 11: Energy in Thermal Processes
Chapter 12: The Laws of Thermodynamics
Exam 4

Chapter 13: Vibrations and Waves (SHM)
Chapter 14: Sound
Final Exam

Communications: I will respond to messages within 24 hours. Check your Webassign announcements often. This is my preferred method for group announcements. You may use the communication options available on Webassign for communicating with me. For faster response time, you may wish to use my email (lrussell@ntcc.edu) since these show up on my phone. The college's official means of communication is via your campus email address. I will use your campus email address to communicate with you outside of class. Make sure you keep your campus email cleaned out and below the limit so you can receive important messages.

Institutional/Course Policy: Students are expected to complete assignments during the assigned window. Exams must be completed during the allowed window. One due date extension will be allowed on daily assignments during the semester without penalty. Any additional extensions will only receive a 70% maximum grade.

Alternate Operations During Campus Closure and/or Alternate Course Delivery Requirements
In the event of an emergency or announced campus closure due to a natural disaster or pandemic, it may be necessary for Northeast Texas Community College to move to altered operations. During this time, Northeast Texas Community College may opt to continue delivery of instruction through methods that include, but are not limited to, online through the Blackboard Learning Management System, online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor NTCC's website (http://www.ntcc.edu/) for instructions about continuing courses remotely, Blackboard for each class for course-specific communication, and NTCC email for important general information.

Additionally, there may be instances where a course may not be able to be continued in the same delivery format as it originates (face-to-face, fully online, live remote, or hybrid). Should this be the case, every effort will be made to continue instruction in an alternative delivery format. Students will be informed of any changes of this nature through email messaging and/or the Blackboard course site.

NTCC Academic Honesty/Ethics Statement:
NTCC upholds the highest standards of academic integrity. The college expects all students to engage in their academic pursuits in an honest manner that is beyond reproach using their intellect and resources designated as allowable by the course instructor. Students are responsible for addressing questions about allowable resources with the course instructor. Academic dishonesty such as cheating, plagiarism, and collusion is unacceptable and may result in disciplinary action. This course will follow the NTCC Academic Honesty and Academic Ethics policies stated in the Student Handbook. Refer to the student handbook for more information on these subjects.

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 the Academic Advisor/Coordinator of Special Populations located in Student Services and can be reached at 903-434-8264. For more information and to obtain a copy of the Request for Accommodations, please refer to the special populations page on the NTCC website.

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.

Tentative Course Timeline (*note* instructor reserves the right to make adjustments to this timeline at any point in the term):

Chap.	Title	*Week*	*Key Due Dates**
1	Introduction and Mathematical Concepts	*1 – 2*	
2	Kinematics in One Dimension	*2 – 3*	
3	Kinematics in Two Dimensions	*4 - 4*	
	Exam #1		***9/11/20***
4	Forces and Newton's Laws of Motion	*5 – 7*	
7	Rotational Motion and the Law of Gravity	*7 - 9*	
	Exam #2		***10/9/20***
5	Work and Energy	*10 - 11*	
13	Vibrations and Waves (Springs)	*11*	
6	Momentum and Collisions	*11 - 12*	
	Exam #3		***10/30/20***
9	Solids and Fluids	*13*	
10	Thermal Physics	*14 - 15*	
Thanksgiving Break 11/23/20 – 11/27/20			
11	Energy in Thermal Processes	*14 - 15*	
12	The Laws of Thermodynamics	*14 - 15*	
	Exam #4		***10/4/20***
13	Vibrations and Waves (SHM)	*15 - 16*	
14	:Sound	*15 - 16*	
	Final Exam		***12/10/20***

**This calendar will be adjusted to the needs of the course. Changes will be based on the course progress. The exam dates could be moved one or two days up or down. The Final Exam date is fixed and will not change.*