NC

North Central State College

MASTER SYLLABUS	**2025-2026**

A. <u>Academic Division</u>: Engineering Technology, Business & Criminal Justice Division

B. <u>Discipline</u>: Physics

C. <u>Course Number and Title</u>: PHYS2010 College Physics I

D. <u>Assistant Dean</u>: Brooke Miller, M.B.A.

E. <u>Credit Hours</u>: 4
   Lecture: 3 hours
   Laboratory: 3 hours

F. <u>Prerequisites</u>: Can be concurrent with MATH1151 (min C required)

G. <u>Last Course/Curriculum Revision Date</u>: Fall 2025   Origin date: 10/21/2013

H. <u>Textbook(s) Title</u>:

   Modified Mastering Physics with Pearson eText Access Code (24 Months) for Physics for Scientists and Engineers: A Strategic Approach with Modern Physics
   - Author(s): Knight
   - Copyright Year: 2022
   - Edition: 5th
   - ISBN #: 9780137319497

I. <u>Workbook(s) and/or Lab Manual</u>:

   Labs will be distributed online.

J. <u>Course Description</u>: This is a calculus-based physics course that has a study of Classical Newtonian Mechanics including measurement systems, dimensional analysis, vectors, scalars, linear, circular and rotational motion, forces in equilibrium, acceleration, work, and energy. A study of material properties including density, and hydraulic principles (both static and kinetic). Also a study of waves, and sound including simple harmonic motion, vibrations, reflection, transmission, interference and resonance for waves, intensity, sources, interference, and Doppler Effect for sound.

K. <u>College-Wide Learning Outcomes</u>:

College-Wide Learning Outcome	**Assessments - - How it is met & When it is met**
Communication – Written	
Communication – Speech	
Intercultural Knowledge and Competence	
Critical Thinking	
Information Literacy	
Quantitative Literacy	

North Central State College
SYLLABUS ADDENDUM

Academic Division:	EBC	**Discipline:**	Physics
Course Coordinator:	Wesley L. Adams		
Course Number:	PHYS 2010-CN1	**Course Title:**	College Physics I
Semester / Session:	Fall 2025 / 16 week	**Start / End Date:**	08/11/2025 thru 12/12/2025

Instructor Information

Name:	Wesley L. Adams	**Credentials:**	MS Physics - East Texas A&M University
Phone Number:		**E-Mail Address:**	wadams@ncstatecollege.edu
Office Location:	Kehoe 134	**Office Hours:**	Mon 2 – 4 pm & Tue 11 – 2 pm

I. Topical Timeline / Course Calendar (Subject to Change):

Weeks	Topics	Assignment	Due Date
1 08/11	Ch 1 Concepts of Motion Ch 2 Kinematics in One Dimension		
2 08/18	Ch 3 Vectors and Coordinate Systems	Lab Graph Matching	08/20
3 08/25	Ch 4 Kinematics in Two Dimensions	HW Ch 1 – 4 Exam 1 Ch (1 – 4)	08/27
4 09/01	Ch 5 Forces and Motion Ch 6 Dynamics I		
5 09/08	Ch 7 Newton's Third Law	HW Ch 5 Lab Force Tables	09/10
6 09/15	Ch 8 Dynamics II: Motion Along a Line	HW Ch 6 – 8 Exam 2 (Ch 5 – 8)	09/17
7 09/22	Ch 9 Work and Kinetic Energy Ch 10 Interactions and Potential Energy		
8 09/29	No Class – Professor out of State	No Class – Professor out of State	
-B- 10/06	Fall Break	Fall Break	
09 10/13	Ch 11 Impulse and Momentum	HW Ch 9 & 10	10/15
10 10/20	Ch 12 Rotation of a Rigid Body	HW Ch 11 Exam 3 (Ch 9 – 11)	10/20
11 10/27	Ch 13 Newton's Theory of Gravity	HW Ch 12 Lab Centripetal Force	10/29
12 11/03	Ch 14 Fluids and Elasticity	HW Ch 13 & 14 Exam 4 (Ch 12 – 14)	11/05
13 11/10	Ch 18 A Macroscopic Description of Matter Ch 19 Work, Heat, and the First Law of Thermo	Lab Specific Heat	11/12
14 11/17	Ch 20 The Micro/Macro Connection Ch 21 Heat Engine	HW Ch 18 & 19	11/19

Revision: August 2025

Weeks	Topics	Assignment	Due Date
15 11/24		HW Ch 20 & 21 Exam 5 (Ch 19 – 21)	11/24
16 12/01	No Class – Professor out of State	No Class – Professor out of State	
17 12/08		Exam Final	12/10

II. Grading and Testing Guidelines:

Final Grade Calculation

Activity	Qty	Points	Percentage
HW Assignments			20%
Lab	7	70	20%
HW Quizzes	9	90	10%
Exams	6	700	50%
			100%

Assessment of your learning will come in two primary ways. First, you will be graded on your application of physics concepts in solving conceptual and mathematical problems. This grade will come from quizzes, homework assignments, and exams. Secondly, assessment will be done in class through questions you will answer and demonstrations you will work together to explain. The student is responsible for his or her active learning in the course.

Assignments: Assignments are required to be done online at www.masteringphysics.com by the due date given. To register, **first log into the class NCSC Canvas** site and select the 'Access Pearson' tab. From there you can use the number from your textbook or buy one there online. After registering, you must join the class by using the class code **adams76021**. Assignments submitted after the due date will be marked down 3% for each day after the due date, down to receiving 50% credit. These assignments require time and are not conducive to procrastination. Note that the assignments are due a week after the date of the class discussion. Some time may be given at the beginning of class for homework related questions.

Lab: Part of the class will include semi-weekly labs that will relate to the lecture part of the week. Labs write up will be provided. Labs will be completed in class, handed in by the end of the week, and graded over the weekend. There will be **no lab makeups**, if you are going to be absent for whatever reason when we have a lab, you must inform me ahead of time and you can receive an excused and not a zero for the lab.

Quizzes: Part of the class will include semi-weekly quizzes (no quizzes on or after exam weeks, first week, and finals/dead week) given on the last day of the week (Wednesday). The quiz will consist of a randomly picked (number generator in class) homework question from the homework that is due that day or previously. Quiz will be given at the start of class, completed on a separate piece of paper, and then turned in. If you are late or have to miss class you must let me know beforehand to receive an excused, otherwise you will receive a zero.

III. Examination Policy:

There will be five exams (worth 100 points each) and a final (worth 200 points). You will be given test notes that you may use on the exam. Be sure to bring your calculator. Cell phones must be out of pockets, lying face down in front of you during every exam. **If your cell phone is not in front of you, or you are found using your cell phone your exam is subject to be taken and you receive a 0 for that exam. Second offences will result in involving administration and possible expulsion from the class**. If you have questions during an exam you are allowed to come ask the professor, but they are free to be as cryptic with their response as needed. If you have a question concerning the grading of a test feel free to bring it to the instructor's attention and argue your point either before or after class. If you need to leave the class for any reason during a test, acquire permission from your instructor and leave your cell phone in the classroom where the instructor can see it. Grading of the exams will mostly be based **on your shown work and not the final result**. Your work getting to the answer is more important than the answer being correct. The final exam will be comprehensive questions covering all the topics of

the semester. It will be built from previous exam and practice exam questions. If you are able to earn a 100% on the final exam (not including extra credit problems), the instructor will increase your grade by one full letter grade.

Extensions of time for assignments and exams are only available at the discretion of the professor and only if requested PRIOR to the due date. Students unable to attend the scheduled test must notify the professor PRIOR to the time of the test (contact info above). If an emergency arises (for example: car accident, hospitalization) then contact your instructor *IMMEDIATELY* or ASAP.

Extra Credit
Extra credit is offered by way of test corrections. The due date will be the next class period after the weekend, normally one week after the tests are handed back. Test corrections are always due at the end of the announced class period and will not be accepted late.

Instructions:
- Do your work on a SEPARATE SHEET OF PAPER (do not write on your original exam).
- If you miss a workout problem, it's best if you first explain where you went wrong. If you used incorrect equations, explain WHY they were incorrect (what type of problem would the equation be used for and why does it not work here). Be sure to start all corrected problems using equations from the test notes, since these are the equations you are given when you take the exam. Finally, recalculate the problem showing how you arrive at the correct answer (show all your calculation steps).
- Get help from classmates if you need it. Or you can get my help during office hours.
- Turn the corrections in by the due date, typically the class after the weekend it is handed back (you can turn them in earlier if you want).
- Make sure you include everything that was asked for. You will not receive credit unless everything is included.

You will receive 1/3 of the points you missed as extra credit (assuming your corrections are done correctly). No partial credit is given for test corrections.

**IV.	Class Attendance and Homework Make-Up Policy:**

Attendance will not be strictly enforced. However, attendance is encouraged as physics is a difficult subject to master, and there are several labs and homework quizzes that require attendance and cannot be made up. Homework will be available until the end of finals week, see above for late policy.

**V.	Classroom Expectations:**

Keys to Success:
- Be prepared for class – *read the chapter, think about the material and prepare questions you want to ask.*
- Take responsibility for your learning – *form study groups, and discuss class topics, do the homework early.*
- Start homework the day of class and spend time every day doing more – *Physics is not conducive to cramming.*
- Learn how to approach problems rather than memorizing one problem and making it fit all the other.

L.   <u>Course Outcomes and Assessment Methods</u>:

Upon successful completion of this course, the student shall:

Outcomes	Assessments – How it is met & When it is met
1. Write a lab report for each laboratory performed. Evaluation will be based on accuracy of data taken, logical consistency of mathematical methods, appropriateness of tables and graphs, completion of required steps, evaluation of the validity of the mathematical models used, identification of sources of error, appropriate use of technology and ability to communicate clearly in writing.	Homework, labs, quizzes, and exams during the weeks 1-16
2. Calculate all missing kinematical variables (including direction of the variable when appropriate), given a problem in one or two-dimensional kinematics (involving position, velocity, and acceleration) of a single object with a constant acceleration.	Homework, labs, quizzes, and exams during the weeks 1-16
3. Add vectors in two dimensions given in rectangular form, and express the answer in rectangular form.	Homework, labs, quizzes, and exams during the weeks 3-16
4. Calculate the missing dynamical variables, including the reaction forces when appropriate, given a problem involving at most two masses, each with a constant acceleration using Newton's laws of motion.	Homework, labs, quizzes, and exams during the weeks 5-16
5. Solve for specified kinematical variables and use Newton's laws of motion to find specified unknown dynamical variables, given a problem involving an object moving in a circle.	Homework, labs, quizzes, and exams during the weeks 7-16
6. Solve a problem, involving constant interactions between no more than two objects, for the unknown dynamical and kinematical variables, given a problem involving the motion of an object with kinetic and gravitational potential energy using the principle of conservation of energy or the work-energy relationship.	Homework, labs, quizzes, and exams during the weeks 8-16
7. Calculate the missing kinematical variables, given a problem involving the collision of two objects in which linear momentum is conserved.	Homework, labs, quizzes, and exams during the weeks 10-16
8. Calculate specified kinematical and dynamical variables using rotational kinematics, rotational dynamics, and conservation of angular momentum, given a problem involving an object in rotational motion with constant angular acceleration.	Homework, labs, quizzes, and exams during the weeks 12-16
9. Solve for the indicated variables for a given static mechanical system that includes both tension and compression members.	Homework, labs, quizzes, and exams during the weeks 13-16
10. Solve for the indicated variables for mechanical waves, particularly standing waves in a stretched string or in an air column.	Homework, labs, quizzes, and exams during the weeks 14-16

Evaluation of the above will be determined by:

1. The appropriate solution formula
2. Correct substitution into said formula
3. The logical consistency of the methods and mathematical steps
4. Correctness of the final numerical result, including proper units

The students will develop the following skills to meet the above outcomes.

1. Use computers as a tool to gather and process data from an experiment.
2. Identify and use the proper units for physical quantities.
3. Interpret and construct graphs and diagrams that describe relationships among physical variables and objects.
4. Interpret formulas by identifying the meaning of constants, describing the conditions for which the formula is valid, and using mathematical relationships to predict how a change in one variable affects the value of another variable.
5. Given a problem, decide what information is missing and what given information is irrelevant. Obtain the missing information and solve the problem.
6. Integrate learning from early units in the course to solve a problem later in the course.
7. Apply appropriate physics concepts to solve problems.
8. Determine whether or not the result of a calculation is reasonable.

M.   Recommended Grading Scale:

NUMERIC	GRADE	POINTS	DEFINITION
93–100	A	4.00	Superior
90–92	A-	3.67	Superior
87–89	B+	3.33	Above Average
83–86	B	3.00	Above Average
80–82	B-	2.67	Above Average
77–79	C+	2.33	Average
73–76	C	2.00	Average
70-72	C-	1.67	Below Average
67–69	D+	1.33	Below Average
63-66	D	1.00	Below Average
60-62	D-	0.67	Poor
00-59	F	0.00	Failure

N.   College Procedures/Policies:

North Central State College believes that every student is a valued and equal member of the community.* Every student brings different experiences to the College, and all are important in enriching academic life and developing greater understanding and appreciation of one another. Therefore, NC State College creates an inclusive culture in which students feel comfortable sharing their experiences. Discrimination and prejudice have no place on the campus, and the College takes any complaint in this regard seriously. Students encountering aspects of the instruction that result in barriers to their sense of being included and respected should contact the instructor, assistant dean, or dean without fear of reprisal.

*   *Inclusive of race, color, religion, gender, gender identity or expression, national origin (ancestry), military status (past, present or future), disability, age (40 years or older), status as a parent during pregnancy and immediately after the birth of a child, status as a parent of a young child, status as a foster parent, genetic information, or sexual orientation*

Important information regarding College Procedures and Policies can be found on the syllabus supplement located at
https://ncstatecollege.edu/documents/President/PoliciesProcedures/PolicyManual/Final%20PDFs/14-081b.pdf