

# NORTH CENTRAL TEXAS COLLEGE COURSE SYLLABUS

|                                                                                                                                                                                                                                                                                                                         |                             |                        |     |                       |           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------|-----|-----------------------|-----------|
| <b>Course Title:</b>                                                                                                                                                                                                                                                                                                    | PHYS-2425 General Physics I |                        |     |                       |           |
| <b>Course Prefix &amp; Number:</b>                                                                                                                                                                                                                                                                                      | PHYS-2425                   | <b>Section Number:</b> | 401 | <b>Semester/Year:</b> | Fall 2021 |
| <b>Semester Credit Hours:</b>                                                                                                                                                                                                                                                                                           | 4                           | <b>Lecture Hours:</b>  | 48  | <b>Lab Hours:</b>     | 48        |
| <b>Course Description (NCTC Catalog):</b><br><i>Fundamental principles of physics, using calculus, for science, computer science, and engineering majors; the principles and applications of classical mechanics, including harmonic motion, physical systems, and thermodynamics; and emphasis on problem-solving.</i> |                             |                        |     |                       |           |
| <b>Course Prerequisite(s):</b><br>MATH 2413 - CALCULUS I                                                                                                                                                                                                                                                                |                             |                        |     |                       |           |
| <b>Required or Recommended Course Materials:</b><br>Textbook: "Physics for Scientists Engineers with Modern Physics" by Douglas C. Giancoli, 4 <sup>th</sup> edition, Pearson.<br>ISBN-13: 978-0131495081<br>ISBN -10: 0131495089<br><br>Calculator (TI30XIIS or equivalent).                                           |                             |                        |     |                       |           |
| <b>Meeting time:</b><br>Lectures: Tuesdays and Thursdays (11:00 pm-12:20 pm), room 213.<br>Labs: Tuesdays (12:30-03:00pm), room 263.                                                                                                                                                                                    |                             |                        |     |                       |           |

## INSTRUCTOR INFORMATION

|                                |                   |
|--------------------------------|-------------------|
| <b>Name of Instructor:</b>     | Franz Aguirre     |
| <b>Campus/Office Location:</b> | Corinth Campus.   |
| <b>E-mail Address:</b>         | faguirre@nctc.edu |

## OFFICE HOURS

|        |         |           |          |        |
|--------|---------|-----------|----------|--------|
| Monday | Tuesday | Wednesday | Thursday | Friday |
|--------|---------|-----------|----------|--------|

|  |  |  |                                     |  |
|--|--|--|-------------------------------------|--|
|  |  |  | Thursdays(12:30-02:00pm), room TBA. |  |
|--|--|--|-------------------------------------|--|

## STUDENT LEARNING OUTCOMES (From Academic Course Guide Manual/Workforce Education

Course Manual/NCTC Catalog

*At the successful completion of this course the student will be able to:*

|  |                                                                                                                                                                                                                                                                                                                                                 |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ol style="list-style-type: none"> <li>1) Demonstrate analytical and solving problem skills using physical models.</li> <li>2) Describe physics concepts verbally, graphically, and mathematically.</li> <li>3) Apply the principles and conservation laws of Physics.</li> <li>4) Analyze experimental data and write a lab report.</li> </ol> |
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## GRADING CRITERIA

| <i># of Graded Course Elements</i> | <i>Graded Course Elements</i> | <i>Percentage or Point Values</i> |
|------------------------------------|-------------------------------|-----------------------------------|
| 1                                  | Quizzes                       | 5%                                |
| 2                                  | Partial Exams (3)             | 30%                               |
| 3                                  | Labs                          | 15%                               |
| 4                                  | Homework and Reviews          | 40%                               |
| 5                                  | Final Exam                    | 10%                               |

**Exams and labs will not be rescheduled and may not be make-up exams.**

Letter grades will be assigned as follows:

A: 90-100 B: 80-89 C: 70-79 D: 60-69 F: 0-59

## Course Calendar

| <b>Dates</b> | <b>Topic</b>                                      | <b>Labs</b> |
|--------------|---------------------------------------------------|-------------|
| 08/24        | 1: Introduction, measurement, Estimating          | Lab 1       |
| 08/26        | 1: Introduction, measurement, Estimating          |             |
| 08/31        | 2: Describing motion: kinematics in one dimension | Lab 2       |
| 09/02        | 2: Describing motion: kinematics in one dimension |             |
| 09/07        | 3: Kinematics in two dimensions; Vectors          | Lab 3       |
| 09/09        | 3: Kinematics in two dimensions; Vectors          |             |
| 09/14        | 4: Dynamics: Newton's laws of motion              | Review 1    |
| 09/16        | Test 1                                            |             |
| 09/21        | 4: Dynamics: Newton's laws of motion              | Lab 4       |
| 09/23        | 5: Using Newton's Laws: Friction.                 |             |
| 09/28        | 5: Using Newton's Laws: Friction.                 | Lab 5       |
| 09/30        | 6: Gravitation and Newton's Synthesis             |             |
| 10/05        | 6: Gravitation and Newton's Synthesis             | Review 2    |
| 10/07        | Test 2                                            |             |

|       |                           |          |
|-------|---------------------------|----------|
| 10/12 | 7: Work and Energy        | Lab 6    |
| 10/14 | 7: Work and Energy        |          |
| 10/19 | 8: Conservation of Energy | Lab 7    |
| 10/21 | 8: Conservation of Energy |          |
| 10/26 | 9: Linear Momentum        | Lab 8    |
| 10/28 | 9: Linear Momentum        |          |
| 11/02 | 10: Rotational Motion     | Review 3 |
| 11/04 | Test 3                    |          |
| 11/09 | 10: Rotational Motion     | Lab 9    |
| 11/11 | 11: Angular Momentum      |          |
| 11/16 | 11: Angular Momentum      | Lab 10   |
| 11/18 | 12: Static Equilibrium    |          |
| 11/23 | 12: Static Equilibrium    | Lab 11   |
| 11/25 | 13: Fluids                |          |
| 11/30 | 13: Fluids                | Lab 12   |
| 12/02 | Review 4                  |          |
| 12/07 | Final                     |          |

Note: The guidelines and days in this syllabus are subject to change, deletion, or amendment at the discretion of the instructor.

**CLASS POLICIES:**

- Be respectful to the class and your instructor.
- Attendance to labs is mandatory.
- Students will take their quizzes, partial and final tests in the classroom.
- Students are expected to avoid disturbing the learning environment.
- Students are expected to be prepared for class. It is highly recommended to read the notes or textbook before coming to class.
- All homework has to be submitted via Canvas. No late work is accepted.
- Make sure you submit the correct file in the correct format (pdf, doc, or jpg). Files with blank documents will be given a score of zero. Double-check that the submitted file can be downloadable by you. No excuse will be accepted for submitting a blank file, incomplete, or non-downloadable file. Work on your homework with time and don't wait until the last minute to submit your solutions to an assignment.
- Do not copy solutions from any other student or the internet. A grade of zero will be assigned to students not following this rule.
- Students should show every step in the solution of a problem. Answers without solutions will be assigned a grade of zero.
- Write legibly in an organized and sequential manner. Make sure you enclose in a box your final answer with the corresponding unit.
- You have a week to dispute your grade in your homework or test. Please, do not wait until the end of the semester for a correction in your grade.
- If you do not understand the class material, read the notes and the textbook, bring and ask questions during the class, attend office hours, or arrange a meeting with me to discuss the issue. I am here to help you.
- Your lowest quiz, lab, and homework grade will be dropped in the calculation of your final grade.

Last day to withdraw from a course with a "W" is November 1<sup>st</sup>, 2021.

**DISABILITY SERVICES** (Office for Students with Disabilities)

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The Office for Students with Disabilities (OSD) provides support services for students with disabilities, students enrolled in technical areas of study, and students who are classified as special populations (i.e. single parents).

Support services for students with disabilities might include appropriate and reasonable accommodations, or they may be in the form of personal counseling, academic counseling, career counseling, etc. Furthermore, OSD Counselors work with students to encourage self-advocacy and promote empowerment. The Counselors also provide resource information, disability-related information, and adaptive technology for students who qualify.

If you feel you have needs for services that the institution provides, please reach out to either Wayne Smith (940) 498-6207 or Yvonne Sandman (940) 668-3300. Alternative students may stop by Room 170 in Corinth or Room 111 in Gainesville.

#### **CORE CURRICULUM FOUNDATIONAL COMPONENT AREA (For classes in the Core)**

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|   |                                |   |                                |
|---|--------------------------------|---|--------------------------------|
| ☐ | Communication                  |   |                                |
| ☐ | Mathematics                    | ☐ | Government/Political Science   |
| ☐ | Life and Physical Science      | ☐ | Social and Behavioral Sciences |
| ☐ | Language, Philosophy & Culture | ☐ | Component Area Option          |
| ☐ | Creative Arts                  |   |                                |
| ☐ | American History               |   |                                |

#### **REQUIRED CORE OBJECTIVES (For classes in the Core)**

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|   |                            |
|---|----------------------------|
| ☐ | Critical Thinking          |
| ☐ | Communication              |
| ☐ | Empirical and Quantitative |
| ☐ | Teamwork                   |
| ☐ | Personal Responsibility    |
| ☐ | Social Responsibility      |

## **COURSE TYPE**

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- ☐ Academic General Education Course (from ACGM but not in NCTC Core)
- ☐ Academic NCTC Core Curriculum Course
- ☐ WECM Course

## **STUDENT HANDBOOK**

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Students are expected to follow all rules and regulations found in the student handbook and published online.

## **ACADEMIC DISHONESTY**

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Scholastic dishonesty shall include but is not limited to cheating, plagiarism, academic falsification, intellectual property dishonesty, academic dishonesty facilitation, and collusion. Faculty members may document and bring charges against a student who is engaged in or is suspected to be engaged in academic dishonesty. See Student Handbook, "Student Rights & Responsibilities: Student Conduct ([FLB(LOCAL)])".

Consequences for academic dishonesty may include:

- 1) Assigning a failing grade for the assignment.
- 2) Assigning a failing grade for the class.

## **QUESTIONS, CONCERNS, or COMPLAINTS**

|                            |                              |
|----------------------------|------------------------------|
| Name of Chair/Coordinator: | Mrs. Jaime Noles             |
| Office Location:           | Gainesville Science Building |
| Telephone Number:          | (940)668-7731 ext. 4930      |
| E-mail Address:            | jnoles@nctc.edu              |

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