This course syllabus is intended as a set of guidelines for PHYS 2425. Both North Lake College and your instructor reserve the right to make modifications in content, schedule, and requirements as necessary to promote the best education possible within prevailing conditions affecting this course.

**Instructor Information:**

Dr. Shahnoor Habib
shabib@dcccd.edu
469-305-9671
Online Course

“Instructors typically respond to emails from students within 24 hours; however, over the weekend and holiday periods, there may be a delay in response. Find out more about contacting your instructor.”
Office Hours: Friday 2:00-3:00 PM from Blackboard Ultra

Course Information
Course title: University Physics I
Course number: 2425
Section number: 71200
Credit hours: 4.00
Course description: This course is a calculus based Physics class that meets laboratory science requirements for engineering majors or other science majors needing calculus-based general physics.
Course prerequisites: Math 2413, DREA 0093 or English as a Second Language (ESOL) 0044 or have met the Texas Success Initiative (TSI) standard in Reading.

Required or Recommended Textbooks and Materials
Now Available on eCampus on your course

1. Physics for Scientists & Engineers (Access Card)
Author: Knight
ISBN: 9780134110561
Publisher: Pearson

PROGRAM-LEVEL OBJECTIVES FOR PHYSICS 2425
Physics 2425 develops the following objectives from the Texas Higher Education Coordinating Board:
- Communication Skills
- Critical Thinking Skill
- Empirical and Quantitative Skills
- Teamwork

COURSE-LEVEL STUDENT LEARNING OUTCOMES FOR PHYSICS 2425
Following the successful completion of this course, students will:
1. Determine the components of linear motion (displacement, velocity, and acceleration), and especially motion under conditions of constant acceleration.
2. Apply Newton’s laws to linear and circular motion.
4. Identify the different types of energy.
5. Solve problems using principles of conservation of energy.
6. Use conservation of linear momentum and energy to solve problems.
7. Determine the location of the center of mass and center of rotation for rigid bodies in motion.
8. Solve rotational kinematics and dynamics problems.
9. Demonstrate an understanding of equilibrium, including the different types of equilibrium, by solving specific problems.
10. Discuss simple harmonic motion and its application to real-world problems.
11. Solve problems involving the First and Second Laws of Thermodynamics.

**Learning Outcomes for Laboratory:**
1. Prepare laboratory reports that clearly communicate experimental information in a logical and scientific manner.
2. Conduct basic laboratory experiments involving classical mechanics.
3. Relate physical observations and measurements involving classical mechanics to theoretical principles.
4. Evaluate the accuracy of physical measurements and the potential sources of error in the measurements.
5. Design fundamental experiments involving principles of classical mechanics.

**Course Outline:** See Appendix A

**Means of Assessment of Course Learning Outcomes**

There will be three **tests** in this course. The final exam is comprehensive. The tests will be a combination of multiple choices and free response problems.

**Homework:** assignments will be assigned for each chapter and submitted through MasteringPhysics. Now available on eCampus.

**Quizzes** - will count as extra credit.

**Laboratory Grade**

**Important**

The lab will be done in teams. A passing grade for the labs (average of 60 or higher) is required to pass the course.

The grade is determined by the accuracy and quality of the lab work and your participation in the team. During the lab will have problem solving sessions with assignments that will count toward the lab grade.

**Attendance Policy**

Attendance in all class lectures and labs is mandatory in order to succeed in this course. You are encouraged to ask questions and to participate in class discussions. You are expected to be active in the laboratory and during class activities.

**Participation**

Science is a collaborative effort and students are encouraged to ask questions, give feedback and share their views and experiences. Physics 2425 is taught in the traditional lecture-lab method. The material will be discussed in class with ample opportunity for class discussion, questions, and demonstrations. In lab, ideas previously discussed in class will be examined in detail. A scientific calculator is required.

**Evaluation Procedures**
Service Learning

What is Service Learning? Service Learning (SL) is a program in which you will learn and develop through thoughtfully organized service experiences by participating in meeting real community needs. The program combines academic instruction along with active community service that utilizes both critical and reflective thinking skills that assist you in examining your civic responsibilities in the world in which you live.

See your eCampus classroom for enrollment instructions.

For questions or concerns, contact the Service Learning Coordinator, Katherine Villarreal, at kvillianreal@dcccd.edu or nlcslddcccd.edu.

Grading Scale

Your final grade will be determined as follows:

<table>
<thead>
<tr>
<th>Final Average</th>
<th>Letter Grade</th>
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<tbody>
<tr>
<td>90-100</td>
<td>A</td>
</tr>
<tr>
<td>80-89</td>
<td>B</td>
</tr>
<tr>
<td>70-79</td>
<td>C</td>
</tr>
<tr>
<td>60-69</td>
<td>D</td>
</tr>
<tr>
<td>0-59</td>
<td>F</td>
</tr>
</tbody>
</table>

Discipline/ Course/ Department/Policies:

Classroom Etiquette:
No cell phones or beeping devices allowed. No recording without permission allowed. Please be courteous to others, collegiate attitude is expected from all students.
**INSTITUTIONAL POLICIES**
Institutional Policies relating to this course can be accessed from the following link:

**Syllabus policies**

**Learning Activities, Outcomes, and Assessment**

<table>
<thead>
<tr>
<th>1. Learning Activity: The students will review and analyze Newton’s Laws as they are applied to solving problems.</th>
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</thead>
<tbody>
<tr>
<td>a. <strong>Learning Outcomes:</strong> Students will calculate the acceleration in the uniform accelerated motion.</td>
</tr>
<tr>
<td>b. <strong>Assessment:</strong> test problem</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Learning Activity: The students will review and analyze the conservation laws as they are applied to solving problems.</th>
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</thead>
<tbody>
<tr>
<td>a. <strong>Learning Outcomes:</strong> Students will demonstrate application of conservation of momentum and energy and be able to apply them to the situation stated by the problem.</td>
</tr>
<tr>
<td>b. <strong>Assessment:</strong> test problem</td>
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<tr>
<th>3. Learning Activity: Students as part of a team will analyze the free fall motion of an object in a lab experiment.</th>
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</thead>
<tbody>
<tr>
<td>a. <strong>Learning Outcomes:</strong> Students will analyze their experimental data to determine the local gravitational constant and then determine if mechanical energy is conserved using video analysis</td>
</tr>
<tr>
<td>b. <strong>Assessment:</strong> lab report.</td>
</tr>
</tbody>
</table>
The Science Center provides student services in the following subjects (majors and nonmajors): Biology, Botany, Microbiology, Anatomy and Physiology, Chemistry, Organic Chemistry, Geology, Physics, Nutrition and Ecology. The center provides face to face tutoring as well as online tutoring for all subjects listed. The center is located in P-333 and offers various resources all of which are free to the students. The SC features tutors, computers, internet, models, microscopes, places to study quietly, places for group work, and other materials to assist in science classes. In order to access resources of the SC a North Lake College ID Card is required. When students attend SC we ask that they sign in and out. These data help us keep the center stocked, running, and most of all, free of charge!

**Hours of operation:**

**Spring/Fall semester:**
1. M – R 9 am to 7 pm,
2. F & Sa 9 am – 3 pm

**Maymester and Wintermester:**
1. M – R 2 pm – 6 pm

**Summer I & II:**
1. M – R 2 pm – 7 pm

**Contact Information:**

Location: P333
Center Phone: 972-273-3273
Website: [tinyurl.com/sciencecenteronline](http://tinyurl.com/sciencecenteronline)
Manager: Amanda Mello
Coordinator: George Eluvathingal