

# NORTH CENTRAL TEXAS COLLEGE

## COURSE SYLLABUS

Course Title:	PHYS 2425 University Physics I				
Course Prefix & Number:	PHYS2425	Section Number:	402	Semester/Year:	FA 2020
Semester Credit Hours:	4	Lecture Hours:	3	Lab Hours:	3
<b>Course Description (NCTC Catalog):</b> <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. Basic laboratory experiments supporting theoretical principles involving the principles and applications of classical mechanics, including harmonic motion and physical systems; experimental design, data collection and analysis, and preparation of laboratory reports.</i>					
<b>Course Prerequisite(s):</b> MATH2413 or concurrent enrollment in MATH2413					
<b>Required or Recommended Course Materials:</b> Physics for Scientists and Engineers 4 <sup>th</sup> Edition, Douglas C. Giancoli, See the instruction on Canvas to purchase the materials. Scientific Calculator (does not need to be a Graphing calculator)					

### INSTRUCTOR INFORMATION

Name of Instructor:	Rojeen Razavi
E-mail Address:	rrazavi@nctc.edu

**OFFICE HOURS:** By appointment only.

**STUDENT LEARNING OUTCOMES** (From Academic Course Guide Manual/Workforce Education Course Manual/NCTC Catalog)

<i>At the successful completion of this course the student will be able to:</i>	
	<b>Lecture Learning Outcomes:</b> <i>Upon successful completion of this course, students will:</i> <ol style="list-style-type: none"> <li>1. Determine the components of linear motion (displacement, velocity, and acceleration), and especially motion under conditions of constant acceleration.</li> <li>2. Solve problems involving forces and work.</li> <li>3. Apply Newton's laws to physical problems.</li> <li>4. Identify the different types of energy.</li> <li>5. Solve problems using principles of conservation of energy.</li> <li>6. Define the principles of impulse, momentum, and collisions.</li> <li>7. Use principles of impulse and momentum to solve problems.</li> <li>8. Determine the location of the center of mass and center of rotation for rigid bodies in motion.</li> </ol>

	<p>9. Discuss rotational kinematics and dynamics and the relationship between linear and rotational motion.</p> <p>10. Solve problems involving rotational and linear motion.</p> <p>11. Define equilibrium, including the different types of equilibrium.</p> <p>12. Discuss simple harmonic motion and its application to real-world problems.</p> <p>13. Solve problems involving the First and Second Laws of Thermodynamics.</p> <p><i>Lab Learning Outcomes:</i></p> <p><i>Upon successful completion of this course, students will:</i></p> <p>1. Prepare laboratory reports that clearly communicate experimental information in a logical and scientific manner.</p> <p>2. Conduct basic laboratory experiments involving classical mechanics.</p> <p>3. Relate physical observations and measurements involving classical mechanics to theoretical principles.</p> <p>4. Evaluate the accuracy of physical measurements and the potential sources of error in the measurements.</p> <p>5. Design fundamental experiments involving principles of classical mechanics.</p> <p>6. Identify appropriate sources of information for conducting laboratory experiments involving classical mechanics.</p>
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**Method of Evaluation:** Your assignments will count for the following percentages of your final grade.

- **Exams – 40%:** There will be 2 exams.
- **Homework –30%:** Homework will be assigned through the MasteringPhysics.
- **Lab–30%**

**Laboratory Work:**

- Late work will not be accepted.
- The documents should be submitted in one single pdf. You can use the free apps like “Cam Scanner” to scan the documents as a single PDF document and upload it in canvas.
- Your work must be clean, neat and professional in appearance otherwise, they will not be graded.

**Percentage of Grades**

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

## **Class Policies**

- Late work will not be accepted.
- No makeup exams will be given.
- Disruptive conversations, eating, sleeping and putting your feet on the furniture are not acceptable behavior in the class.
- Students are expected to avoid disturbing the learning environment.
- Missed exams and lab experiments cannot be made up.
- Students are expected to be prepared for class.
- A scientific calculator must be brought to each lab session.
- During the lab, students work together in data collection and analysis. Lack of participation and collaboration will affect your grade.
- Before leaving the lab session, let the instructor check your data sheet. Return all apparatus to its appropriate locations. **Clean up the lab table.**
- Students are expected to be respectful in behavior, tone, and words during all interactions. A student that does not follow the etiquette rules or shows disruptive behavior may be asked to leave the classroom at the discretion of the instructor.

There will be **no Extra Credit Assignments.**

PHOTOGRAPHY: **No photography or filming in class.**

## **ATTENDANCE POLICY**

Regular and punctual attendance is expected of all students in all classes for which they have registered. All absences are considered to be unauthorized unless the student is absent due to illness or emergencies as determined by the instructor. It is the student responsibility to provide documentation as to the emergency for approval and judgement by the faculty member.

Approved college sponsored activities are the only absences for which a student should not be held liable and only when provided by a college official ahead of the absence. Valid reasons for absence, however, do not relieve the student of the responsibility for making up required work. Students will not be allowed to make up an examination missed due to absence unless they have reasons acceptable to the instructor. A student who is compelled to be absent when a test is given should petition the instructor, in advance if possible, for permission to postpone the exam. Student will be dropped from a class by the Registrar upon recommendation of the instructor who feels the student has been justifiably absent or tardy a sufficient number of times to preclude meeting the course's objectives. Persistent, unjustified absences from classes or laboratories will be considered sufficient cause for College officials to drop a student from the rolls of the College. From Board Policy FC (LOCAL)

Last day to withdraw from a course with a "W" is November 2, 2020.

## **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 provides 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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<input type="checkbox"/>	Communication	<input type="checkbox"/>	Government/Political Science
<input type="checkbox"/>	Mathematics	<input type="checkbox"/>	Social and Behavioral Sciences
X	Life and Physical Science	<input type="checkbox"/>	Component Area Option
<input type="checkbox"/>	Language, Philosophy & Culture		
<input type="checkbox"/>	Creative Arts		
<input type="checkbox"/>	American History		

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

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X	Critical Thinking	X	Teamwork
X	Communication	<input type="checkbox"/>	Personal Responsibility
X	Empirical and Quantitative	<input type="checkbox"/>	Social Responsibility

## **COURSE TYPE**

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<input type="checkbox"/>	Academic General Education Course (from ACGM but not in NCTC Core)
X	Academic NCTC Core Curriculum Course
<input type="checkbox"/>	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.

## PHYS2425: Fall, 2020

Week	Topic	Lab
1 8/24	2: Motion Equations	TBA
2 8/31	3: Vectors	Free Fall
3 9/7	Labor Day	
4 9/14	3: Projectile Motion	Projectile Motion
5 9/21	4&5: Newton's Laws	Force Table
6 9/28	5: Circular Motion	Friction
7 10/5	6: Universal Law of Gravitation	Hooke's Law
8 10/12	7: Work and Energy	Problem Session
9 10/19	8: Conservation of Energy	Conservation of Energy
10 10/26	9: Momentum and Collisions	Problem Session
11 11/2	10&11: Rotational Motion	Torque
12 11/9	12: Static Equilibrium	Problem Session
13 11/16	13: Fluids	Density
14 11/23	13: Fluids	1 Archimedes Principle
15 11/30	14: Oscillation 15: Wave Motion	
16 12/7		

<b>Midterm Exam</b>	Chapter 1-7	10-12-2020
<b>Final Exam</b>	Chapter 8-15	12-7-2020

## COVID-19 Specific Syllabi Statements Fall 2020

### **Syllabi statement regarding potential Conversion of Onsite Classes to Online/Remote Format:**

North Central Texas College students should be aware that in the event of a college closure due to COVID-19, onsite classes will be converted to an online/remote format. Students should plan ahead to ensure they have access to the computer equipment (either PC, MAC, or tablet), webcam, and internet connectivity to continue their classes in an online/remote format. Please read all your official North Central Texas College student emails as the transition from onsite to online/remote might require a reorganization in your personal situation. Students will be granted a 72-hour transition and grace period. Online classes will continue as scheduled without disruption. Wear a mask, stay safe, and contact your Instructor as the situation arises. These policies and procedures were updated on July 30, 2020 and are subject to change.

**Syllabi Statement Regarding Face Coverings:** Per the North Central Texas College guidance on face coverings on campus, in the instructional setting, faculty and students must wear face coverings, such as masks or face shields. Students without coverings, or those who do not comply with the rules relating to face coverings, will not be able to participate in on-campus classroom activities. To request an exception to this requirement, students should contact the NCTC HR Office of Enrollment Management ([ccove@nctc.edu](mailto:ccove@nctc.edu)). Failure to comply with the face coverings requirement may result in the Instructor directing the student to leave the classroom. Any student asked to leave the classroom may be referred to the student conduct officer. These policies and procedures were updated on July 30, 2020 and are subject to change.

**Temporary COVID-19 Attendance Policy for Face-to-Face Meetings:** We are facing an unprecedented situation in which all of us must be flexible and make prudent decisions in the best interest of our families, our campus, and our community. In light of this, North Central Texas College is temporarily establishing the requirement that faculty keep records of student attendance for face-to-face course meetings as well as a documented seating chart. In addition, students who are sick or need to quarantine should not attend classes. Students will not be required to provide formal documentation from a health care provider and will not be penalized for COVID-19 related absences when proper notification to campus health officials is made in accordance with the guidelines stated below.

Students should:

- Provide notification to campus officials (via NCTC Daily Health Check protocol through Canvas) if they have tested positive for COVID-19 or have to quarantine so we can confirm reported absence with instructors, monitor, and assist the campus community.
- Notify instructors in advance of the absence.
- Connect with that class through Webex if the class session is being transmitted in a hybrid fashion.

- Keep up with and/or make up missed classwork or assignments.
- Submit assignments digitally through Canvas or other means as announced by your instructor.
- Work with their instructors to reschedule exams, labs, and other critical academic activities described in the course syllabus.
- Check Canvas and campus email daily to receive important announcements pertaining to the course.

During this period, faculty with face-to-face meetings will establish assigned seating/work stations to facilitate roll-taking, and, if necessary, contact tracing. Additionally, we ask all members of the College community to be attentive to their health, and safeguard others, by following the CDC's guideline to "stay home when you are sick." You should stay home if you have symptoms. More information on what to do if you are sick is available at the CDC's website.

Additional NCTC information is available at <http://www.nctc.edu/coronavirus/index.html>

## **Syllabus Addendum – Fall 2020 – Student Services**

### **Student Success Center**

The Student Success Center is designed to help all students at NCTC develop tools to achieve their academic goals. The center links students to FREE tutoring, including a Writing Center, a Math Lab, and free online tutoring. The program helps students acclimate to college by providing free interactive online workshops. For more information, please visit your nearest Student Success Center.

Student Success offers academic coaching, tutoring, including a Writing Center, and a Math Lab to assist new students acclimate to college by providing computer lab services for prospective students. <http://www.nctc.edu/student-services/student-success/tutoring/index.html>

First generation students can also participate in TRIO which offers specialized services.

<http://www.nctc.edu/student-services/trio-student-support-services.html>

### **Completion Center**

The NCTC Completion Center is a comprehensive student engagement program that increases retention and completion rates of first-time, low income students. Services include:

Success coaching to address students' academic and non-academic challenges and issues; Success Seminars, and a centralized career readiness and job placement program.

<http://www.nctc.edu/student-services/completion-center/index.html>

### **Career Services Center**

The NCTC Career Services Center is the place you can go for educational and career planning.

Services include: Career/Degree Exploration, Job Search Tools and Resources, Resume and Professional Portfolio Development, Interview Skills and Preparation. Our Career Advisors partner with you in making your educational journey an efficient process towards a rewarding career. <http://www.nctc.edu/career-services/index.html>

### **Counseling and Advising**

Support Services, Counseling and Advising staff offer a variety of services to current and prospective students, such as College 101, placement testing, academic advising and course registration, transfer assistance, and College Success seminars (Time Management, Study Skills, Test Anxiety, Choosing a Major, Learning Style Strategies, Career Exploration) and much more. <http://www.nctc.edu/counseling-advising/index.html>

### **Testing Service Center**

The mission of NCTC Testing Services is to provide high-quality testing services that adhere to the professional standards and guidelines to meet the needs of students, faculty, and community members. <http://www.nctc.edu/testing-center/index.html>

### **Early Alert and CARES**

The NCTC Early Alert program assists students who are at risk of failing or withdrawing from a course. Faculty and staff may refer students through the Early Alert process at any point in the semester in an effort to provide appropriate intervention and access to support services. Examples of behaviors that could prompt an Early Alert referral could be missing assignments, failing tests, excessive absences, or personal circumstances impacting academic performance. A student submitted as an Early Alert will be contacted by an [academic advisor or success coach](#) through text, phone, and/or via their NCTC e-mail address to discuss any current challenges as well as helpful resources and success strategies-we want our students to finish strong and know that education is a partnership!

The [NCTC CARES \(Campus Assessment Response Evaluation Services\) Team](#) is concerned not only about our students' academic success, but also their emotional and physical well-being. The CARES Team promotes a safe learning environment for students, faculty, and staff and is committed to taking a proactive approach in helping our students succeed by addressing the mental, emotional or psychological health and safety of the NCTC community. As a student, you have the ability to report concerning behavior which could impact your own safety or the safety of another NCTC student, such as stalking, harassment, physical or emotional abuse, violent or threatening behavior, or self-harm. Visit the NCTC CARES site to also locate campus and community resources, or email [counseling@nctc.edu](mailto:counseling@nctc.edu) to get in touch with a member of the CARES Team directly. As always, if you feel there is an immediate threat to your own safety or welfare (or to another student), please call 911 immediately.

### **Financial Aid**

Financial Aid offers financial resources for students that qualify, visit the financial aid offices for more information. <http://www.nctc.edu/financial-aid/index.html>



**Student Success**

At NCTC, student success is progress towards collegiate goals, reached in an affordable and timely manner, under professional guidance, empowering students to serve skillfully in their chosen role within their community

**Equity**

NCTC defines equity as encompassing the practice of acknowledging individual differences and systemic disparities when developing new programs and resources for our campus community, which may sometimes challenge our own beliefs and assumptions, in order to ensure balanced educational opportunities toward completion.

**Affinity Groups**

Staff and faculty representing the Employee Resource Groups (ERG's), along with academic advisors, counselors and success coaches, serve as mentors for NCTC's student-centered Affinity Groups.

An Affinity Group is a population of students who have specific needs, barriers or systems they are needing to navigate not only within college, but within life. Providing mentorship, support and resources for identified Affinity Groups such as Black/African American students, veterans and active military, single parents, students with disabilities, adult learners, Latinx, LGBTQ+ and students who have experienced foster care and/or homelessness, enables us to make more impactful, meaningful connections with students who are in dire need of equity and understanding.