

**The University of Texas at El Paso  
Department of Physics  
Syllabus**

**COURSE INFORMATION**

**PHYS 2210:** Vibrations and Waves

CRN: 16590

Term: Fall 2023

Delivery Method: In-person

Meeting Day and Time: Tuesdays and Thursdays 4:30 pm – 5:20 pm (08/28/2023 to 12/07/2023)

Location: Geology Building 404

Prerequisite(s): (PHYS 2420 or 2120 or 2320 w/C or better)

**INSTRUCTOR INFORMATION**

Hari Nair, Dr.

Written Communication: Blackboard

Phone Number: (915)747-7544

Office Location: PSCI, Room 223 C

Office Hours:

- Face-to-Face: Tuesdays 14:00 pm to 16:00 pm (by appointment)

Email: hnair@utep.edu

**\*COURSE DESCRIPTION**

“Vibrations and Waves” will provide students with a rigorous description of forced and coupled oscillations of transverse waves and longitudinal waves. The following topics will be covered: Forced oscillations and resonance. Coupled oscillations and normal modes. Transverse waves. Longitudinal waves. Boundary effects and interference. Standing waves and normal modes. Diffraction. Polarization. Non-linear oscillations and chaos. Non-linear waves and solitons.

**\*COURSE OBJECTIVES AND UNIVERSITY LEARNING OUTCOMES**

By the end of the course, students will be able to:

- Understand and solve physics problems related to vibrations and waves.
- Critical and problem-solving skills.
- Numerical abilities.

**\*ASSIGNMENTS AND GRADING**

Assignments for this course will be distributed through the learning management system called Mastering Physics, by Pearson. Students are required to purchase this product. The instructions to register for the course in Pearson and how to access it are provided in a separate document which is uploaded to Blackboard – **Student\_Registration\_Handout\_nair95367.pdf**.

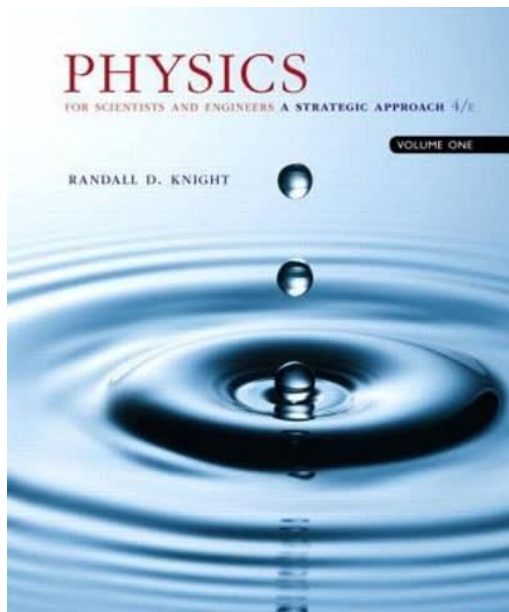
Exams for this course will be descriptive. The final exam will be comprehensive of all chapters covered in the lectures. There will be three term exams in September, October and November and the final exam in December.

The percentage distribution of various components of the course is as follows:

3 exams in Sep, Oct, Nov (30%) + final exam in Dec (30%) + homework assignments (10%) + quizzes/class performances (30%)

Grades: >90% = A, 89-80% = B, 79-60% = C, 59-45% = D, < 44% = F

### **\*REQUIRED MATERIALS**



Knight, Randall. *Physics for scientists and engineers A strategic approach 4e*, Pearson.

### **TECHNOLOGY REQUIREMENTS**

Some course content is delivered via the Internet through the Blackboard learning management system. Ensure your UTEP e-mail account is working and that you have access to the Web and a stable web browser. Google Chrome and Mozilla Firefox are the best browsers for Blackboard; other browsers may cause complications. When having technical difficulties, update your browser, clear your cache, or try switching to another browser.

You will need to have access to a computer/laptop. You will need to download or update the following software: Microsoft Office, Adobe Acrobat Reader, Windows Media Player, QuickTime, and Java. Check that your computer hardware and software are up-to-date and able to access all parts of the course.

If you do not have word-processing software, you can download Word and other Microsoft Office programs (including Excel, PowerPoint, Outlook and more) for free via UTEP's Microsoft Office Portal. Click the following link for more information about [Microsoft Office 365](#) and follow the instructions.

**IMPORTANT:** If you encounter technical difficulties beyond your scope of troubleshooting, please contact the UTEP [Help Desk](#) as they are trained specifically in assisting with

technological needs of students. Please do not contact me for this type of assistance. The Help Desk is much better equipped than I am to assist you!

## **COURSE COMMUNICATION:** How we will stay in contact with each other

Here are the ways we can keep the communication channels open:

- Office Hours: I will have office hours for your questions and comments about the course. My office hours are in-person. Please see the days and times at the top of this syllabus.
- Email: UTEP e-mail is the best way to contact me. I will make every attempt to respond to your e-mail within 24 hours of receipt. When e-mailing me, be sure to email from your UTEP student e-mail account and please put the course number in the subject line. In the body of your e-mail, clearly state your question. At the end of your e-mail, be sure to put your first and last name, and your university identification number.
- Announcements: Check the Blackboard announcements frequently for any updates, deadlines, or other important messages.

## **ATTENDANCE AND PARTICIPATION**

**Our class meetings are in-person at Geology Building 404, every Tuesday and Thursday from 4:30 pm to 5:20 pm, beginning August 28 through December 7.**

Attendance for the course is determined by signing an attendance sheet but it does not contribute towards your final grade points. Your participation in the course is important not only for your learning and success but also to creating a community of learners. Participation is determined by the completion of the following activities:

- Reading/Viewing all course materials to ensure understanding of assignment requirements.
- Participating in engaging discussions with your peers
- Other activities as indicated in the weekly modules.

Because these activities are designed to contribute to your learning each week, they cannot be made up after their due date has passed.

## **ILLNESS PRECAUTIONS**

Please stay home if you have symptoms of a communicable illness. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodation.

## **\*EXCUSED ABSENCES AND/OR COURSE DROP POLICY**

According to UTEP Catalog, "At the discretion of the instructor, a student can be dropped from a course because of excessive absences or lack of effort. A grade of "W" will be assigned before the course drop deadline and a grade of "F" after the course drop deadline." See Policies and Regulations in the UTEP Undergraduate Catalog for a list of excuse absences. Therefore, if I find that, due to non-performance in the course, you are at risk of failing, I will drop you from the course. I will provide 24-hour advance notice via email.

**OR**

I will not drop you from the course. However, if you feel that you are unable to complete the course successfully, please let me know and then contact the [Registrar's Office](#) to initiate the drop process. If you do not, you are at risk of receiving an "F" for the course.

## **DEADLINES, LATE WORK, AND ABSENCE POLICY**

- Homework assignments will be due on Sundays at midnight (11:59 PM) via Mastering Physics. No late work will be accepted if the reason is not considered excusable.
- Exam 1 will be on September 26th; Exam 2 on October 26th and Exam 3 on November 28th.
- Last-minute absences from exams are not encouraged.
- The final exam will follow the UTEP schedule. <https://www.utep.edu/student-affairs/registrar/Scheduling/Final%20Exam%20Schedule%20Fall%202023.pdf>

## **MAKE-UP WORK**

Make-up work will be given *only* in the case of a *documented* emergency. Note that make-up work may be in a different format than the original work, may require more intensive preparation, and may be graded with penalty points. If you miss an assignment and the reason is not considered excusable, you will receive a zero. It is therefore important to reach out to me—in advance if possible—and explain with proper documentation why you missed a given course requirement. Once a deadline has been established for make-up work, no further extensions or exceptions will be granted.

## **ALTERNATIVE MEANS OF SUBMITTING WORK IN CASE OF TECHNICAL ISSUES**

I strongly suggest that you submit your work with plenty of time to spare if you have a technical issue with the course website, network, and/or your computer. I also suggest you save all your work (answers to discussion points, quizzes, exams, and essays) in a separate Word document as a backup. This way, you will have evidence that you completed the work and will not lose credit. If you are experiencing difficulties submitting your work through Blackboard, please contact the UTEP Help Desk. If it is Mastering Physics, you should contact Pearson Helpdesk. You can email me your backup document as a last resort.

## **INCOMPLETE GRADE POLICY**

Incomplete grades may be requested only in exceptional circumstances after you have completed at least half of the course requirements. Talk to me immediately if you believe an incomplete is warranted. If granted, we will establish a contract of work to be completed with deadlines.

## **\*ACCOMMODATIONS POLICY**

The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance

with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodation will be made unless it is determined that doing so would cause undue hardship for the University. Students requesting accommodation based on a disability must register with the UTEP Center for Accommodations and Support Services (CASS). Contact the Center for Accommodations and Support Services at 915-747-5148, email them at [cass@utep.edu](mailto:cass@utep.edu), or apply for accommodation online via the CASS portal.

### **\*SCHOLASTIC INTEGRITY**

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as one's own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the [Office of Student Conduct and Conflict Resolution \(OSCCR\)](#) for possible disciplinary action. To learn more, please visit [HOOP: Student Conduct and Discipline](#).

### **\*GUIDANCE ON ARTIFICIAL INTELLIGENCE**

The use of generative AI tools such as Chat GPT is permitted in this course for the following activities, which must be noted or cited:

- Essays and descriptive parts of the homework assignments.

- Special essays assigned on selected topics.

However, you may not use AI tools to complete the following activities:

- Exams or numerical problems.

- Quizzes.

Students must cite any borrowed content sources to comply with all applicable citation guidelines, copyright law, and avoid plagiarism. Instances that violate these guidelines will be referred to the Office of Student Conduct and Conflict Resolution.

### **PLAGIARISM DETECTING SOFTWARE**

Some of your course work and assessments may be submitted to SafeAssign, a plagiarism detecting software. SafeAssign is used to review assignment submissions for originality and will help you learn how to properly attribute sources rather than paraphrase.

### **\*COURSE RESOURCES: Where you can go for assistance**

Technology Resources

- [Help Desk](#): Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the Helpdesk via phone, email, chat, website, or in person if on campus.

#### Academic Resources

- [UTEP Library](#): Access a wide range of resources including online full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students.
- [University Writing Center \(UWC\)](#): Submit papers here for assistance with writing style and formatting, ask a tutor for help and explore other writing resources.
- [Math Tutoring Center \(MaRCS\)](#): Ask a tutor for help and explore other available math resources.
- [History Tutoring Center \(HTC\)](#): Receive assistance with writing history papers, get help from a tutor and explore other history resources.
- [RefWorks](#): A bibliographic citation tool; check out the RefWorks tutorial and Fact Sheet and Quick-Start Guide.
- [The Miner Learning Center](#): Join peer-led study sessions in person or online to review content and discover study strategies in core curriculum courses.
- [UTEP Edge](#): UTEP's cross-campus framework for student success and empowerment – develops students' assets through high-impact experiences made possible by the expertise and dedication of faculty, staff, alumni, and community partners.

#### Individual Resources

- [Student Success Help Desk \(SSHD\)](#): Students experiencing challenges or obstacles to academic success including registration, financial, food, housing, and transportation resources may submit a ticket request assistance to [studentsuccess@utep.edu](mailto:studentsuccess@utep.edu)
- [Military Student Success Center](#): Assists personnel in any branch of service to reach their educational goals.
- [Center for Accommodations and Support Services](#): Assists students with ADA-related accommodations for coursework, housing, and internships.
- [Counseling and Psychological Services](#): Provides a variety of counseling services including individual, couples, and group sessions as well as career and disability assessments.
- [UTEP Food Pantry](#): Non-perishable food items are available to students who are currently enrolled in classes. Bring a Miner Gold Card to Memorial Gym, Room 105, Monday through Friday, 10 a.m. to 2 p.m.