Phys 2420 Introductory Mechanics (CRN 18666)

CRN: 18666  
Term: Fall 2021  
Prerequisite: MATH 1411 (may be taken concurrently with Phys2420)

Instructor: Prof. Yun-Pil Shim  
Office: PSCI 121A  
E-mail: yshim@utep.edu  
Office hours: MW 1:00pm-2:00pm (Virtually via Blackboard Collaborate Ultra)

Course Description and Objectives

In this course you will learn dynamics of particles and rigid bodies using vectors and calculus, conservation of energy and momentum, and kinetic theory. These concepts form the foundation of the physical sciences and engineering branches.

1) Learn to reason qualitatively and logically about physics phenomena.  
2) Learn physical concepts from concrete real-world examples.  
3) Learn how to setup and solve problems applying concepts and mathematical tools learned in class.

Lectures, Seminars (Workshops), and Lab.

Lecture  
Lecture hours: TR 1:30pm – 2:50pm  
Location: Blackboard Collaborate Ultra

Seminar (Workshop)  
18671 M 12:00pm-12:50pm  
TA: Ian Reyes  
20133 T 9:00am-9:50am  
TA:  
Location: Blackboard Collaborate Ultra for each seminar course  
Seminars will begin in week 3 (Week of September 6).

Lab  
The lab is run independently, but it covers topics taught in the class.  
For any questions regarding the Lab, contact the lab coordinator.  
Lab Coordinator: Karla Carmona  
Office: PSCI 317  
E-mail: kcarmona@utep.edu

Grading Policy:  
Mid-term exams: 30% (2 exams, 15% each)  
Final exam: 25%  
Homework: 15%  
Seminars: 10%  
Lab: 20%

Textbook and Homework
Textbook:
Physics for Scientists & Engineers: A Strategic Approach (By Randall D. Knight, 4th Edition)

Online homework: Mastering Physics, Pearson
Course name: PHYS2420CRN18666SHIM
Course ID: shim45825
Student Registration Instruction for Mastering Physics is on Blackboard.

The class will follow the textbook, and homework problems will come from the problems at the end of the chapters. Renting or buying the textbook is strongly encouraged, but access to the Mastering Physics website is required.

Exams: 2 Midterm exams + 1 Final exam

Midterm and Final exams will be given on Blackboard.

Midterm Exams:
There will be 2 midterm exams, each covering 4 chapters.
Midterm exam #1 will cover chapters 1-4.
Midterm exam #2 will cover chapters 5-8.
Midterm exams will be taken during class hours.

Final Exam:
The final exam is on Thursday December 09.
It will be a comprehensive exam (covering chapters 1-12).
You will have a 24 hours period to finish your final exam within 3 hours after you start.

Technology Requirements
Course content is delivered via the Internet through the Blackboard learning management system. You will need to have access to a computer/laptop with internet access.

Webcam and microphone are optional for lectures.

Lectures will be recorded, and lecture recordings and slides will be available on Blackboard.

Course communication will be via email and Blackboard. Ensure your UTEP email account is working. Check the Blackboard for announcements.

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.

Homework is online at Mastering Physics website. You will have to get access to the Mastering Physics and register for the course. See the Registration Instruction on course Blackboard.

IMPORTANT: If you encounter technical difficulties beyond your scope of troubleshooting, please contact the UTEP Help Desk (https://www.utep.edu/technologysupport/) 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 Policies

COVID-19 Precautions:
Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations. If you have tested positive for COVID-19, you are encouraged to report your results to covidaction@utep.edu, so that the Dean of Students Office can provide you with support and help with communication with your professors. The Student Health Center is equipped to provide COVID 19 testing.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes. For more information about the current rates, testing, and vaccinations, please visit epstrong.org.

Students with Disabilities:
If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at https://www.utep.edu/student-affairs/cass/. Accommodations might include but are not limited to note takers, readers, or extended time on exams and assignments. Please take care of this as soon as possible and before the first exam.

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.
Course Overview and Weekly Schedule

Course overview

Ch. 1 Concepts of Motion
Ch. 2 Kinematics in One Dimension
Ch. 3 Vectors and Coordinate Systems
Ch. 4 Kinematics in Two Dimensions
Ch. 5 Force and Motion
Ch. 6 Dynamics I: Motion Along a Line
Ch. 7 Newton’s Third Law
Ch. 8 Dynamics II: Motion in a Plane
Ch. 9 Work and Kinetic Energy
Ch. 10 Interactions and Potential Energy
Ch. 11 Impulse and Momentum
Ch. 12 Rotation of a Rigid Body

Weekly Course Schedule (subject to change)

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<th>Week</th>
<th>Dates</th>
<th>Topic</th>
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<td>Week 1</td>
<td>Aug 24 &amp; Aug 26</td>
<td>Introduction, Chapter 1</td>
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<tr>
<td>Week 2</td>
<td>Aug 31 &amp; Sep 2</td>
<td>Chapter 2</td>
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<tr>
<td>Week 3</td>
<td>Sep 7 &amp; Sep 9</td>
<td>Chapter 3</td>
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<tr>
<td>Week 4</td>
<td>Sep 14 &amp; Sep 16</td>
<td>Chapter 4</td>
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<td>Week 5</td>
<td>Sep 21 &amp; Sep 23</td>
<td>Review, Midterm 1</td>
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<td>Week 6</td>
<td>Sep 28 &amp; Sep 30</td>
<td>Chapter 5</td>
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<td>Week 7</td>
<td>Oct 5 &amp; Oct 7</td>
<td>Chapter 6</td>
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<td>Week 8</td>
<td>Oct 12 &amp; Oct 14</td>
<td>Chapter 7</td>
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<td>Week 9</td>
<td>Oct 19 &amp; Oct 21</td>
<td>Chapter 8</td>
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<td>Week 10</td>
<td>Oct 26 &amp; Oct 28</td>
<td>Review, Midterm 2</td>
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<td>Week 11</td>
<td>Nov 2 &amp; Nov 4</td>
<td>Chapter 9</td>
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<td>Week 12</td>
<td>Nov 9 &amp; Nov 11</td>
<td>Chapter 10</td>
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<td>Week 13</td>
<td>Nov 16 &amp; Nov 18</td>
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<td>Week 14</td>
<td>Nov 23 &amp; Nov 25</td>
<td>Chapter 12, Thanksgiving</td>
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<tr>
<td>Week 15</td>
<td>Nov 30 &amp; Dec 2</td>
<td>Chapter 12, Review</td>
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<td>Week 16</td>
<td><strong>Dec 9</strong></td>
<td>Final Exam</td>
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