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Spring 2022

PHYS 103-008: General Physics

Aneer Lamichhane

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Class Schedule:
Day and Time: W/F 1:00-2:20 PM
Room: Tiernan Hall 105
Delivery Mode: Face-to-Face (Delivery of instruction is structured around in-person classroom meeting times. Instruction is delivered in person and students are expected to attend class).

Instructor Information

Office: On class and email
Office Hour: Friday after class
Phone: 720-755-1345
E-Mail: Aneer.Lamichhane@njit.edu
Webex room: https://njit.webex.com/meet/al593

PRE-REQUISITES AND CO-REQUISITES:
- Pre-requisites: Phys 102 with grade C or better
- Co-requisites: Phys 103A (the lab course) unless previously taken

SUCCESS TO MEET EITHER CO-Requisites or PRE-Requisites will result in student being dropped from class.

COURSE MATERIAL:

- Mastering Physics Homework System: Be sure that your textbook is sold bundled with a Mastering Physics student access code card. Each student must enroll in the course specified by his/her instructor. Homework assignments will be posted on-line. Students login, download and solve the assigned problems, and submit answers to the automated grading system.

NOTE: THE LABORATORY COURSE, PHYS 103A, MUST BE TAKEN CONCURRENTLY WITH PHYS 103 THE STUDENT MUST REGISTER FOR BOTH THE LEC/REC AND THE LAB COURSE. WITHDRAWAL FROM EITHER COURSE WILL CAUSE A SIMULTANEOUS WITHDRAWAL FROM BOTH COURSES.

CLASS ATTENDANCE: The NJIT attendance policy is the following: “It is expected that students will attend all classes. Your teacher will take attendance at all classes and exams. More than 3 unexcused absences (in total) are excessive

COUNSELING AND ACADEMIC SUPPORT: The Center for Counseling and Psychological Services is committed to assisting students experiencing high levels of personal challenge and stress. If you need accommodations due to a disability please contact Associate Director of Disability Support Services.

HELP: Visit or email your instructors if you are having trouble with the course; do not simply hope for a miracle and fall further behind. The Physics Dept. office on the 4th floor of Tiernan has specific information on tutoring. Physics tutoring is available through the CAPE organization, and possibly elsewhere.
GRADING: Final letter grades will be based on a term average for the semester’s work that includes the three common exam scores, the final exam, the homework score, and in-class quiz score.

COMMON EXAMS  Three common exams will be given during the semester. The schedule is:

- **Common Exam 1:** Wednesday, February 16  4:15 – 5:45 PM
- **Common Exam 2:** Wednesday, March 23  4:15 – 5:45 PM
- **Common Exam 3:** Wednesday, April 27  4:15 – 5:45 PM

HOMEWORK  Homework assignments will be posted on-line using the Mastering Physics Homework System. Please register for your section using  login:  www.masteringphysics.com.

Course code to register to homework class: lamichhane64252

LECTURE QUIZZES  In-class quizzes covering the preceding or current work will be given during lectures and/or recitations at Canvas (https://canvas.njit.edu). Use your NJIT UCID and password to login. The Lecture Quizzes scores count toward your final course grade. **There are no make-ups for in class activities.** Students missing a lecture quiz will receive a grade of zero for that item.

FINAL EXAM  Comprehensive Final Exam will be given during Final Exam Period.

Here are the approximate weights to be used for calculating term averages:

- 48% for all three common exams (16% each)
- 32% for the final exam
- 10% for the total of homework work
- 10% for the in-class participation (canvas quizzes)

The cutoff percentages for various letter grades will be:

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 85%</td>
<td>A</td>
</tr>
<tr>
<td>≥75 %</td>
<td>B+</td>
</tr>
<tr>
<td>≥65 %</td>
<td>B</td>
</tr>
<tr>
<td>≥56 %</td>
<td>C+</td>
</tr>
<tr>
<td>≥50 %</td>
<td>C</td>
</tr>
<tr>
<td>≥45 %</td>
<td>D</td>
</tr>
<tr>
<td>&lt; 45</td>
<td>F</td>
</tr>
</tbody>
</table>

Final grades are not negotiable: A score of 84.99% is a B+, not an A.

COURSE POLICIES

In order to insure consistency and fairness in application of the NJIT policy on withdrawals, student requests for withdrawals after the deadline *end of the 10th week of classes* will not be permitted unless extenuating circumstances are documented **through the Office of the Dean of Students**. The course instructor and the Dean of Students are the principal points of contact for students considering withdrawing from a course. When a student invokes extenuating circumstances for any reason (late withdrawal from a course, request for a make-up exam, request for an Incomplete grade) the student will be sent to the Dean of Students Office. The Dean of Students will be making the determination of whether extenuating circumstances exist or not
and will be notifying the instructor accordingly. Instructors should never request or accept medical or other documents from students; such documents need to be submitted by the student to the Dean of Students.

**HONOR CODE**

“Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: [http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf](http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf).

Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu”

**LEARNING OUTCOMES:** For this course you can expect to be assessed on the following learning outcomes:

1. Comprehend the meaning of equations governing the fluid at rest and fluid in motion. Understand the extension of conservation of energy and mass equations to fluid dynamics.
2. Define temperature scales.
3. Understand the phenomena of thermal expansion and Ideal Gas Law.
4. Understand the concept of heat and comprehend the meaning of equations governing the calorimetry and heat transfer.
5. Understand the basics concepts of thermodynamics.
6. Comprehend the meaning of equations governing oscillations and mechanical waves and apply those concepts to solve related problems.
7. Understand the concept of electric charge, electric field, electric potential, and electric current. Apply those concepts to solve simply circuits.
8. Understand the basic concepts of geometrical optics and learn how to apply them for mirrors, lenses and optical fibers.
9. Comprehend the wave theory of light and apply it the phenomena of interference and diffraction.

**Physics 103 (008) Class Schedule for Spring 2022**

<table>
<thead>
<tr>
<th>Week 1</th>
<th>Jan. 18 – Jan. 24</th>
<th>Topic</th>
<th>Text Study</th>
<th>Recommended Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Elasticity, Density and Pressure, Fluids at Rest</td>
<td>Chapt. 9 Sect. 5-6, Chapt. 10 Sect. 1-7</td>
<td>p. 256 pr. 40, 45, 50, p. 285 pr. 2, 12, 14, 19, 23, 27, 34</td>
<td>Intro</td>
</tr>
</tbody>
</table>

| Week 2 | Jan. 25 – Jan. 31 | Fluids in Motion | Chapt. 10 Sect. 8-10 | p. 285 prob. 47, 48, 49, 50, 53, 80 | A |


### Week 5  
**Feb. 15 – Feb. 21**  
Transfer of Heat  
Chapt. 14 Sect. 6 - 8  
p.408 pr. 38, 42, 43, 54  

### Week 6  
**Feb. 22 – Feb. 28**  
Thermodynamics  
Chapt. 15 Sect. 1-7  
p. 438 pr. 1, 18, 19, 24, 32  

### Week 7  
**March 01 – March 07**  
Simple Harmonic Motion, Waves, Standing Waves  
Chapt. 11 Sect. 1-12  
p. 322 pr.3, 7, 8, 14,18, 27, 36, 37, 40, 49, 52  

### Week 8  
**March 08 – March 13**  
Sound  
Chapt. 12 Sect.1-7  
p. 354 pr. 3, 4, 9, 14, 27, 28, 56, 63  

### Week 9  
**March 14 – March 21**  
SPRING RECESS  

### Week 10  
**March 22 – March 28**  
Electric Charges, Electric Field, Electric Potential  
Chapt.16 Sect.1-5, 7  
Chapt. 17 Sect. 1-2  
p. 468 pr. 2, 3, 19, 21  
p. 496 prob. 3, 4, 6, 9  

### Week 11  
**March 29 – April 04**  
Electric Current, Resistance, Electric Power  
Chapt.18 Sect. 1-7  
p.521 pr.1, 9, 13, 17, 28, 37, 47, 54  

### Week 12  
**April 05 – April 11**  
Electric Circuits  
Chapt.19 Sect. 1- 5, 7  
p.552 pr. 1, 4, 12, 15, 16, 77  

### Week 12  
**April 12 – April 18**  
Light: Reflection, Mirrors, Refraction  
Chapt. 22 Sect. 3-4  
Chapt. 23 Sect. 1-3  
p. 673 pr. 4, 9, 12, 25, 26, 28, 29, 72  

### Week 13  
**April 19 – April 25**  
Light: Total Internal Reflection, Lenses  
Chapt. 23 Sect. 4-8  
p. 673 pr. 35, 36, 41, 43, 47, 48  

### Week 14  
**April 26 – May 03**  
Interference, Diffraction Grating, Resolution  

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**Spring 2022 Academic Calendar**

<table>
<thead>
<tr>
<th>January</th>
<th>17</th>
<th>Monday</th>
<th>Martin Luther King, Jr. Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>18</td>
<td>Tuesday</td>
<td>First Day of Classes</td>
</tr>
<tr>
<td>January</td>
<td>22</td>
<td>Saturday</td>
<td>Saturday Classes Begin</td>
</tr>
<tr>
<td>January</td>
<td>24</td>
<td>Monday</td>
<td>Last Day to Add/Drop a Class</td>
</tr>
<tr>
<td>Date</td>
<td>Day</td>
<td>Event Description</td>
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<tr>
<td>January 24</td>
<td>Monday</td>
<td>Last Day for 100% Refund, Full or Partial Withdrawal</td>
<td></td>
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<tr>
<td>January 25</td>
<td>Tuesday</td>
<td>W Grades Posted for Course Withdrawals</td>
<td></td>
</tr>
<tr>
<td>January 31</td>
<td>Monday</td>
<td>Last Day for 90% Refund, Full or Partial Withdrawal, No Refund for Partial Withdrawal after this date</td>
<td></td>
</tr>
<tr>
<td>February 14</td>
<td>Monday</td>
<td>Last Day for 50% Refund, Full Withdrawal</td>
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<tr>
<td>March 7</td>
<td>Monday</td>
<td>Last Day for 25% Refund, Full Withdrawal</td>
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<tr>
<td>March 14</td>
<td>Monday</td>
<td>Spring Recess Begins - No Classes Scheduled - University Open</td>
<td></td>
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<tr>
<td>March 19</td>
<td>Saturday</td>
<td>Spring Recess Ends</td>
<td></td>
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<tr>
<td>April 4</td>
<td>Monday</td>
<td>Last Day to Withdraw</td>
<td></td>
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<tr>
<td>April 15</td>
<td>Friday</td>
<td>Good Friday - No Classes Scheduled - University Closed</td>
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</tr>
<tr>
<td>April 17</td>
<td>Sunday</td>
<td>Easter Sunday - No Classes Scheduled - University Closed</td>
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<tr>
<td>May 3</td>
<td>Tuesday</td>
<td>Friday Classes Meet</td>
<td></td>
</tr>
<tr>
<td>May 3</td>
<td>Tuesday</td>
<td>Last Day of Classes</td>
<td></td>
</tr>
<tr>
<td>May 4</td>
<td>Wednesday</td>
<td>Reading Day 1</td>
<td></td>
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<tr>
<td>May 5</td>
<td>Thursday</td>
<td>Reading Day 2</td>
<td></td>
</tr>
<tr>
<td>May 6</td>
<td>Friday</td>
<td>Final Exams Begin</td>
<td></td>
</tr>
<tr>
<td>May 12</td>
<td>Thursday</td>
<td>Final Exams End</td>
<td></td>
</tr>
<tr>
<td>May 14</td>
<td>Saturday</td>
<td>Final Grades Due</td>
<td></td>
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<tr>
<td>May TBA</td>
<td></td>
<td>Commencement</td>
<td></td>
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</tbody>
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Student Registration Instructions

To register for **Phys. 103 - 008 - Spring 2022**:  

1. Go to [https://mlm.pearson.com/enrollment/lamichhane64252](https://mlm.pearson.com/enrollment/lamichhane64252)

2. Sign in with your Pearson student account or create your account.

   Instructors, use or create a Pearson student account to register as a student. Don't use your instructor account.

3. Select any available access option, if asked.
   - » Enter a prepaid access code that came with your textbook or from the bookstore.
   - » Buy instant access using a credit card or PayPal.
   - » Select **Get temporary access without payment for 14 days**.

4. Select **Go to my course**.

5. Select **Phys. 103 - 008 - Spring 2022** from My Courses.

If you contact Pearson Support, give them the course ID: lamichhane64252

To sign in later:

1. Go to [https://mlm.pearson.com](https://mlm.pearson.com)

2. Sign in with the same Pearson account you used before.

3. Select **Phys. 103 - 008 - Spring 2022** from My Courses.