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Office hours for sections 006 and 008: Monday, 10:00 – 11:25 AM Wednesday, 1:00 -2:30 PM

PRE-REQUISITES AND CO-REQUISITES:

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

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

COURSE MATERIAL:

1. **Textbook:** “Physics: Principles with Application, Seventh Edition by Douglas C. Giancolli, Prentice Hall, ISBN – 13: 978-0-321-62592-2
- **Classroom Response System** called “iClickers”: Iclickers will be used in the lecture class for in-class quizzes. They are available in the NJIT bookstore. Please bring your Iclicker to each class.
- **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. FOR THE LABORATORY COURSE YOU WILL NEED PHYS 103A LAB MANUAL 6th EDITION

ATTENDANCE: It is expected that students will attend all lectures and recitations. Attendance will be taken at all classes and exams. More than 3 unexcused absences (in total) are excessive. If you have excusable absences contact your instructor or the Dean of First Year Students. If you must withdraw from the course, do it officially through the Registrar. Do not simply stop attending and taking exams: that forces the instructor to assign a course grade of "F".

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: Your final letter grade in Phys 103 will be based on a composite score for term’s work that includes the common exam scores, the final exam, lecture quizzes or Iclickers, and the homework score.

1) **Common Exams** Three common exams will be given during the semester.

- **Common Exam 1:** Wednesday, February 22 4:15 – 5:45 PM
- **Common Exam 2:** Wednesday, March 22 4:15 – 5:45 PM
- **Common Exam 3:** Wednesday, April 26 4:15 – 5:45 PM

The general policy is that students who miss a common exam will receive a score of zero for that Exam. That score will be included in the calculation of your final grade. Students that miss two common exams automatically fail the course. Students who anticipate an absence from a common exam should discuss their situation with their instructor **PRIOR TO** their absence. In order to be qualified to receive a "make-up" common exam score (a very rare occurrence), the student should present documentation for not being able to take the test as scheduled. As is the standard policy of NJIT, this documentation should be presented to the student’s Physics 103 instructor **AND** to the Dean of Students - (973) 596-3466, 2nd floor Campbell Entry. **BOTH** the Physics 103 instructor and Dean of Students must concur in permitting a "make-up" common exam. Students who miss common exams that do not present documentation within 7 days of the common exam will receive a score of zero for the common exam.

2) **Lecture Quizzes** In-class I-Clicker Questions/quizzes covering the preceding or current work will be given during lectures and/or recitations. Those scores count toward your final course grade. **There are no make-ups for in class activities.** Students missing an I-Clicker question/ quiz will receive a grade of zero for that item.

3) **Homework** Homework assignments will be posted on-line using the Mastering Physics Homework System. You will need the course ID when you set up your login on the Mastering Physics web site and enroll in your section of the course. Please register for the correct section. login: www.masteringphysics.com. Homework due dates will be announced. The recommended problems from the text (see syllabus) will be discussed during the recitation class.

**Course IDs to enroll to homework classes are:
Section 006 – S2017PHYS103006 Section 008 – S2017PHS103008**

4) **Final Exam** Comprehensive Final Exam will be given during Final Exam Period.

Final Letter Grades: Here are the approximate weights to be used for calculating the composite score:

- 51% for all three common exams (17% each)
- 29% for the final exam
- 12% for the total of homework work
- 8% for the all in-class quizzes/ Iclickers

The cutoff percentages for various letter grades will be in the range of 80% for A, 75 % for B+, 68% for B, 60% for C+, 52% for C, 51% for D and F below 48 %. Final grades are not negotiable: A score of 79.999999% is a B+, not an A.

HONOR CODE STATEMENT: NJIT has a zero-tolerance policy for cheating of any kind and for student behavior that disrupts learning by others. Violations will be reported to the Dean of Students. The penalties range from a minimum of failure in the course plus disciplinary probation up to expulsion from NJIT. Avoid situations where your own behavior could be misinterpreted as dishonorable. **Students are required to agree to the NJIT Honor Code on each exam, assignment, quiz, etc. for the course.**

Turn off all cellular phones, wireless devices, computers, and messaging devices of all kinds during classes and exams. Please do not eat, drink, or create noise in class that interferes with the work of other students or instructors. Creating noise or otherwise interfering with the work of the class will not be tolerated.

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 lenses and optical fibers.
9. Comprehend the wave theory of light and apply it understand the phenomena of interference and diffraction.

IMPORTANT DATES:

March 12- 19 Spring Recess
 April 14 Good Friday
 May 2, Tuesday – Friday Classes Meet
 May 3 – Reading Day 1
 May 4 - Reading Day 2
 May 5 – May 11 Final Exam Period

Any changes to the syllabus will be consulted with students.

	Topic	Text Study	Recommended Problems	
Week 1 January 17 – January 23	Introduction, Solids, Density and Pressure, Fluids at Rest	Chapt. 9 Sect. 5-6 Chapt. 10 Sect 1-7	p. 285 prob. 2, 12, 14, 19, 23 27, 34,	Intro
Week 2 January 24 – January 30	Fluids in Motion	Chapt. 10 Sect. 8-10	p. 285 prob. 47, 48, 49, 50, 53, 80	A
Week 3 January 31– February 6	Temperature, Thermal Expansion, The Ideal Gas Law	Chapt. 13 Sect. 1-8	p.385 prob. 5, 12, 15, 19, 24, 31, 39, 78	7
Week 4 February 7 – February 13	Specific Heat, Calorimetry, Latent Heat,	Chapt. 14 Sect. 1-5	p.408 prob. 2, 13, 14, 25, 27, 34, .	D
Week 5 February 14 – February 20	Transfer of Heat	Chapt. 14 Sect. 6 - 8	p.408 prob. 38, 42, 43, 54	E
Week 6 February 21 – February 27	Thermodynamics	Chapt. 15 Sect. 1-7	p. 438 prob. 1, 18, 19, 24, 32,	F
Week 7 February 28 – March 6	Simple Harmonic Motion Waves, Standing Waves	Chapt. 11 Sect. 1-12	p. 322 prob.3, 7, 8, 14,18, 27, 36, 37, 40, 49, 52,	B1
Week 8 March 7 – March 11	Sound	Chapt. 12 Sect.1-7	p. 354 prob. 3, 4, 9, 14, 27, 28, 56, 63	W
March 12 – March 19 Spring Break				
Week 9 March 20 – March 26	Electric Charges, Electric Field, Electric Potential	Chapt.16 Sect.1-5,7 Chapt 17 sect. 1-2	p. 468 prob. 2, 3, 19, 21, p. 496 prob. 3, 4, 6, 9	J
Week 10 March 27 – April 2	Resistance, Electric Current, Electric Power	Chapt.18 Sect. 1-7	p.521 prob.1, 9, 13, 17, 28, 37, 47, 54	H
Week 11 April 3– April 9	Electric Circuits	Chapt.19 Sect. 1- 4, 7	p. 552 prob. 1, 4, 12, 15, 16, 77	215
Week 12 April 10 – April 16	Light: Reflection, Mirrors, Refraction	Chapt . 22 Sect 3-4 Chapt. 23 Sect. 1-3	p. 673 prob. 4, 9, 12, 25, 26, 28, 29, 72	K1
Week 13 April 17 – April 22	Light: Total internal Reflection, Lenses	Chapt. 23 Sect. 4-8	p. 673 prob. 35, 36, 41, 43, 47, 48	M
Week 14 April 23 – May 2	Interference, Diffraction Grating, Thin Films Interference	Chapt. 24 Sect. 1,3-8	p. 707 prob. 1, 4, 7, 33, 38, 54, 81, 82, 84	N