

Fall 2020

PHYS 103-001: General Physics

Hussein Hijazi

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INSTRUCTOR: Hussein Hijazi, email: hh32@njit.edu Office: 323C TIER

Office hours: Thursday (in office), 9:30 – 10:30 am, or by appointment

Classes : T: 2:30 pm – 3:50 (CKB217), Th: 7:30-8:50 (KUPF117)

PRE-REQUISITES AND CO-REQUISITES:

- **Pre-requisites:** Phys 102 with grade C or better
- **Co-requisites:** Phys 103A (the lab course) unless a waiver is provided by the Physics Dept Office. For example, the Lab 103A may be rescheduled for the next Semester.

FAILURE TO MEET EITHER CO-Requisites or PRE-Requisites will result in student being dropped from class. I shall initiate conferences in Canvas at the appropriate lecture times. I recommend you all set up your canvas page to join the lectures for each lecture as well as for your recitations. Recordings of the lectures and interactive recitations will be available also after the lecture period, through Canvas

COURSE MATERIAL:

- **Textbook:** “Physics: Principles with Application, Seventh Edition by Douglas C. Giancoli, Prentice Hall, ISBN – 13: 978-0-321-62592-2
- **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.

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. The attendance is in the classroom or via WebEx.

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 may have more information on tutoring.

GRADING: Final letter grades will be based on a **term average** for the semester’s work that includes the three exam scores, the final exam, and the homework score.

EXAMS Three exams will be given this semester during lecture time. The schedule is:

- **Exam 1:** Thursday, October 06 2:30 – 3.50 PM
- **Exam 2:** Thursday, November 03 2:30 – 3.50 PM
- **Exam 3:** Thursday, December 01 2:30 – 3.50 PM
- **Final Exam** : Wednesday, December 16 2:30 – 5.00 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 CODES TO REGISTER TO HOMEWORK CLASSES with PROF. HIJAZI

Section 101 – CRN 94615

Instructor’s ID in Mastering Physics: Canvas→MyLab and Mastering→Get started

PHYSICS 103 NJIT FALL 2020 HIJAZI

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

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

- 45% for all three exams (15% each)
- 30% for the final exam
- 20% homework (10 HW in total, 2% each)
- 5% class participation

The conversion of term average values to letter grades will use the following cutoff values:

- 80% for A, 76% for B+, 66% for B, 56% for C+, 50% for C, and D or F below 50%.

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>.

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.

IMPORTANT DATES:**NOVEMBER 26, THANKSGIVING****FINAL EXAM – DECEMBER 16 2:30pm-5:00pm**

	Topic	Text Study	Recommended Problems	
Week 1 Sept.3	Elasticity, Density and Pressure, Fluids at Rest	Chapt. 9 Sect. 5-6 Chapt.10 Sect. 1-7	p. 256 prob. 40, 45, 50 p. 285 prob. 2, 12, 14, 19, 23 27, 34,	Intro
Week 2 Sept.10	Fluids in Motion	Chapt. 10 Sect. 8-10	p. 285 prob. 47, 48. 49, 50, 53, 80	A
Week 3 Sept.17	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 Sept. 24	Specific Heat, Calorimetry, Latent Heat,	Chapt. 14 Sect. 1-5	p.408 prob. 2, 13, 14, 25, 27, 34, .	D
Week 5 Oct. 01	Transfer of Heat	Chapt. 14 Sect. 6 - 8	p.408 prob. 38, 42, 43, 54	E
Week 6 Oct. 08	Thermodynamics	Chapt. 15 Sect. 1-7	p. 438 prob. 1, 18, 19, 24, 32,	F
Week 7 Oct. 15	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,	G
Week 8 Oct. 22	Sound	Chapt. 12 Sect.1-7	p. 354 prob. 3, 4, 9, 14, 27, 28, 56, 63	B1
Week 9 Oct. 29	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	W
Week 10 Nov. 05	Electric Current, Resistance, Electric Power	Chapt.18 Sect. 1-7	p.521 prob.1, 9, 13, 17, 28, 37, 47, 54	J
Week 11 Nov. 12	Electric Circuits	Chapt.19 Sect. 1- 5, 7	p. 552 prob. 1, 4, 12, 15, 16, 77	H
Week 12 Nov.19	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	215
Nov.26 Thanksgiving	No classes			
Week 14 Dec. 03 Thanksgiving	Light: Total Internal Reflection, Lenses	Chapt. 23 Sect. 4-8	p. 673 prob. 35, 36, 41, 43, 47, 48	M
Week 15 Dec. 10	Interference, Diffraction Grating, Resolution	Chapt. 24 Sect. 1, 3, 4, 6 Chapt. 25 Sect. 7-9	p. 707 prob. 1, 4, 7, 33, 38, p. 740 prob. 53, 55, 67, 83	N

Week 16 Dec. 16	FINAL EXAM 2:30pm-5:00pm	
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