

**Physics 107**  
**Summer 2018**  
**Department of Mathematics and Physics**  
Bashundhara, Dhaka 1229

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Instructor	: Mohammad Murshed
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Office Phone	: N/A
Course No	: PHY 107
Section No.	: 5
Credit Hours	: 3
Class Meeting Time	: Sundays and Tuesdays (3:55 pm to 5:20 pm)
Class Meeting Place	: SAC 212
Office Hour	: Sundays and Tuesdays (2:30 pm to 3:30 pm)
Course Description	: Designed to introduce the principles of Newtonian Mechanics. Students in science and engineering major take this course in their first year to develop foundations on key concepts like Scalar Quantities, Measurement, Equations of Motion, Newton's Laws, Laws of Conservation, Linear and Angular Momentum, Gravitation, Kinetic Theory, Thermodynamics.
Learning Outcome	: This course will enable students to -Analyze a scientific problem using mathematical tools e.g. vectors -Interpret the physical meaning of the conservation laws -Appreciate concepts in Newtonian Mechanics using calculus -Understand the ideas behind waves and thermodynamics
Textbook	: Fundamentals of Physics, Halliday and Resnick, 9th Edition
Grade Distribution	: 5% ( <i>attendance</i> ), 15% ( <i>quiz</i> ), 10% (2 <i>HW</i> ) 40% (2 <i>midterms</i> ), 30% ( <i>final</i> ) You will have 5 quizzes. The best 3 count.
Attendance	: To be done manually 20 mins before the class ends
Expectation/Norms	: Attend all classes. Ask questions. Participate in discussion. There will be no make-up for any missed quizzes or exams Phones should be turned off during lectures and exams
Honor Code	: Interaction among students is allowed to better understand concepts to complete tasks assigned during the semester, but, each student must turn in his/her own work. Unauthorized contribution will result in a score of zero for the group involved
Lecture Details	: Below is a tentative schedule of the lectures

Lecture	Date	Topic
1	27/5/2018	Introduction. Measurement, Base Units
2	29/5/2018	Vectors/Scalar: Addition and product rules
3	3/6/2018	1D motion: Displacement, Velocity, Acceleration. Free fall.
4	5/6/2018	Motion in 2D and 3D, Projectile motion
5	10/6/2018	Force and Motion 1: Newton's Laws (1st and 2nd)
6	19/6/2018	Force and Motion 2: 3rd Law, Friction.
7	24/6/2018	<b>Midterm Exam 1</b>
8	26/6/2018	Work and Energy, Work-Energy Theorem, Work done by special forces
9	1/7/2018	Potential Energy and Energy Conservation- Potential Curve
10	3/7/2018	Conservation of Energy. Conservation of Momentum.
11	8/7/2018	Center of Mass, Linear Momentum. Moment of inertia, K.E of rotation
12	10/7/2018	Torque and Angular Momentum. Parallel Axis Theorem
13	15/7/2018	Equilibrium/Elasticity.
14	17/7/2018	Gravitation: Superposition.
15	22/7/2018	Potential energy, Keplers Laws, Orbits/ Satellites Gravitation
16	24/7/2018	<b>Midterm Exam 2</b>
17	29/7/2018	Simple Harmonic Motion, Uniform Circular Motion
18	31/7/2018	Mass-Spring System, Energy Associated with SHM
19	5/8/2018	Wave Equation: Standing and Traveling waves.
20	7/8/2018	Temperature and Heat
21	12/8/2018	Thermal Variables and Systems, 1st Law of Thermo
22	14/8/2018	Kinetic Theory of Gases.
23	19/8/2018	Entropy and second law of thermodynamics.
24	26/8/2018	Review of Selected Chapters
	TBD	<b>Final Exam</b>

**\*\* I will start the semester with the two HW (definitions and problems).**

- **Quiz, Midterms and Final exam would mostly contain mathematical problems**
- **There may be changes in the date and time for the quiz, midterms and the final.**