Course Outline Physics 111 - 018 Spring 2017

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Office Hours: 1-2:00 pm Wednesday and by appointment

1. **Co-requisites: Math 111 and Phys 111a**
2. **Textbook***: Sears and Zemansky's University Physics with Modern Physics*, 13th Edition Technology Update, by Young and Freedman. The publisher is PEARSON. (also used for Phys 121 and 234)
3. **Classes:** The NJIT attendance policy is the following: "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 Students - (973) 596-3466, Room 255 Campus Center.** If you must withdraw from the course, do it officially through the Registrar, otherwise your course grade will be F.
   C**ell phones and laptops must be off during classes and exams**. If you have to miss class, attend the next physics tutoring session and let your professor know. Some professors use i-clickers.
4. **Homework: (12% of grade)** Half of the exam questions are related to the homework, so the understanding you gain counts twice. Be sure that your text includes a Mastering Physics "student access code card" for the homework at www.masteringphysics.com. Your course ID is MPLEVY92032. The text forms the basis for these questions. **Do your homework at one of the physics tutoring sessions, with assistance when needed.** It is a substantial help in learning the course material: The locations and hours will be determined soon.
5. **Quizzes: (8% of grade)** There will be frequent quizzes in class. They are very valuable because they are similar in content and format to exam questions. There are no quiz make-ups.
6. **Exams**: **(80% of grade)** The amount of new material covered determines the exam weights.

1: Monday, Feb 6	; 4:15 – 5:45 PM	**10% of grade**
2: Monday, Mar 6	; 4:15 – 5:45 PM	**17%**
3: Monday, Apr 10	; 4:15 – 5:45 PM	**17%**
Final: May 5-11	; 2.5 hours	**36%**

   The exam questions are multiple-choice with content common to all students and with professors covering all concepts and question settings in class. See the schedule below for details. Make-ups for exams 1, 2 and 3 are only at 6-7:30PM on the exam day and only with advance permission from both your instructor and the Dean of Students. The Final will emphasize the weeks of work after Exam 3, but cover the whole course.
7. **Letter grades:** The conversion of numerical to letter grades is as follows:
   > 90% A; 90-80 B+; <80–70 B; <70-65 C+; <65-55 C; <55 - 50 D; < 50 F.
   If you have a question about any grade, you must ask your professor before the final exam. After the Final exam, grades are not open to discussion: A score of 90.0% is a B+, not an A.

HONOR CODE: The NJIT Student Council dictates **"**NJIT has a zero-tolarance policy for cheating of any kind and for student behavior that disrupts learning by others." More information below.

Detailed Schedule

Class Weeks, topics and dates	Book Chapters	Lab numbers and Topics
Week 1 1D motion and units 1/17	Ch.1.1-6 and 2	Introduction
Week 2 2D motion , vectors 1/23	Ch. 1.7-9 and 3.1-3	109. 1 D motion
Week 3 Forces + exam 1 review; 1/30	Ch. 4	111. Projectile motion
Exam 1 1D&2D motion, units,vectors; 2/6	**On Weeks 1-2**	
Week 4 Linear static forces 2/6	Ch. 5.1 and 11	112 Newton's 2nd
Week 5 Friction 2/13	Ch. 5.2-3	103 Linear statics
Week 6 Work and Kinetic Energy 2/20	Ch. 1.10 and 6	106 Friction
Week 7 Potential and conservation of Energy + exam 2 review 2/27	Ch. 7	New: Work and Kinetic Energy
Exam 2 Forces, friction, energy 3/6	**On weeks 3-6**	
Week 8 Momentum and Collisions 3/6	Ch. 8	125 Conservation of Energy
Spring break 3/13		
Week 9 Circular motion 3/20	Ch. 3.4 and 5.4	126 Conservation of momentum
Week 10 Torque, Moment of Inertia 3/27	Ch. 1.10 and 9	114 Circular motion
Week 11 Rotational Motion 4/3	Ch. 10.1-6	127 Torque and rotation
Exam 3 on conservation, circular motion & torque 4/10	**On weeks 7-11**	
Week 12 Rotation statics+Exam 3 rev. 4/10	Ch. 11.1-3	120 Conservation angular energy
Week 13 Fluid Mechanics 4/17	Ch. 12.1-5	121 rotation static forces
Week 14 Universal Gravitation 4/24	Chap. 13	7 Archimedes' Principle
Review of the course 5/1		
Classes end 5/2		
Final exam tbd	Weeks 1-14	

Jan 16: no class **Jan 23: last day for withdrawal, full refund.**
Mar 27: last day for getting a "W"; May 3,4: reading days; May 5-11: Final exams

Labs are on the same topics as lectures, homework and practice problems, but a week later so the class work will introduce the labs. Roughly half of the exam questions will be based on the lab experiments.

Practice problems in the text; the homework and labs are chosen to help you prepare for the exams;

These are good practice.
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pg. 60 – 4, 7, 15, 20, 25, 38, 44, 80
pg. 96 – 4, 7, 12, 19, 24, 26, 35, 47, 56, 57
pg. 128 – 4, 10, 17, 21, 28, 32, 43, 46

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pg. 429 – 5, 6, 13, 15, 18, 22, 24, 32, 37

Professor's goal: To help you do well in the course and achieve certain Learning Outcomes:

The student will be able to understand and calculate the following:

1. Units, estimates and significant figures in the evalutaions of events or objects of realistic significance.
2. Magnitude and direction of vector combinations using addition, subtraction, scalar, and cross product.
3. Position, velocity and acceleration of an object moving in a straight line under constant acceleration and under realistic circumstances and also for motion in a plane using orthogonality.
4. Net force, mass and acceleration (Newton's Laws) as the basis of motion.
5. The same quantities using geometery, free body diagrams and frictional forces.
6. Acceleration and force of circular motion at constant speed.
7. The same quantities taking into account conservation and non-conservation of energy for linear and rotational motion.
8. The momentum and impulse under realistic circumstances and events.
9. Work, energy, and conservation of energy of mechanical and non-conservative systems for linear and rotational motion.
10. Center of mass of a system as well as its moment of inertia in the context of static and dynamic conditions.
11. Parameters of static and linear motion of fluids using pressure, conservation of energy and mass.
12. Mass and distance in the force and potential energy involved in the gravitational field.

Details on missed quizzes and exams:

There are no make-ups for in-class activities. If you miss a quiz, you will receive a grade of zero.

If you miss an exam, you will receive a score of zero for that Exam. That score will be included in the calculation of your final grade. If you miss two exams, you will automatically fail the course. To get credit for an exam, ***you must notify your instructor PRIOR TO the exam the you will be absent***. In order get credit for an exam, you must also present documentation for a valid reason for your absence. Present this documentation to your Physics 111 instructor AND to the Dean of Students - (973) 596- 3466, Room 255 Campus Center. BOTH the Physics 111 instructor and Dean of Students must concur in permitting credit. If you get the permissions, a separate make-up test for the missed exam will not be offered. Instead, the portion of the final exam relevant to the contents of the missed exam will be considered for giving a grade for the missed test. The instructor will evaluate the final exam questions from the exam topics that were missed and calculate a grade for the exam that you missed.

Details on Honor Code: The NJIT Student Senate has requested a zero-tolerance policy for cheating of any kind and for student behavior that disrupts learning. The Senate wants fairness for all students. The Dean of Students determines punishments and requires professors to report any incidents. The penalties include failure in the course plus disciplinary probation up to expulsion from NJIT. Avoid situations where anyone could misinterpret your behavior 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.