Course Outline ***PHYSICS 105*** Fall 2009

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Office hours: Monday 10:00 – 11:30, Thursday 3:00 – 4:00 pm or by appointment.

Section 019

LECTURE	Monday	8:30 – 9:55,	TIER 113
RECITATION	Thursday	16:00 – 17:25,	FMH 310

COURSE OBJECTIVES

Welcome to Physics 105 !
Active learning is the most important objective of this course. Here are some critical outcomes that are intended:

- Improvement of problem modeling and analysis, and problem-solving skills.
- Understanding the basic principles governing elementary mechanics. Topics include scalar and vector quantities, 1-D and 2-D motion, Newton's laws relating forces and motion, friction, equilibrium, work and energy, impulse, and momentum.
- Insight to the scientific process: modeling observed phenomena and in Physics 105 /106, applying fundamental laws of mechanics and dynamics to commonly observed phenomena.

COURSE MATERIAL

Textbook:
"NJIT Physics 105 / 106 -- Physics for Scientists and Engineers Enhanced College Physics" by Serway/Faughn/Jewett/Vuille (Publisher: Thomson)
(First part -- before brown partition -- abbreviated as B1, Second part -- after brown partition -- abbreviated as B2,)

Physics Laboratory Manual (available in the campus bookstore)

Supplemental*: Textbook instructional website – follow directions from your textbook insert.*

COURSE REQUISITES

LABORATORY COURSE: The associated laboratory course, **Physics 105A**, must be taken concurrently unless you have previously taken and passed Physics 105A. The grading for the laboratory is separate from the course/recitation/workshop and the grades are assigned by the laboratory instructors. Please refer to the website http://physics.njit.edu/classes/physlab for the laboratory schedule and additional information concerning the labs.

WORKSHOP: Physics-A Workshop, **Physics 105W**, is an integral component of the Phys 105 course/recitation offered in the current semester and it must be taken concurrently. The grade earned in Phys 105W contributes to the final grade for the Phys 105 course. ***Therefore, it is the student's responsibility to register for the workshop.***

YOU MUST BE REGISTERED FOR ALL COMPONENTS OF THE COURSE:
LECTURE/RECITATION (Phys 105)
PHYSICS WORKSHOP (Phys 105W)
LABORATORY COURSE (Phys 105A)

ATTENDANCE:

Attendance at lectures, recitations and workshops is REQUIRED.
Attendance will be taken with the in-class quiz for lectures and with a sign-in sheet for recitation.

HOMEWORK:

Homework problems will be assigned and graded at the Homework Service at Texas University. Get an account at http://cns.utexas.edu/quest/support/student

Detailed instructions are attached at end. You have two weeks to get login and submit first homework. Thereafter, homework will be due weekly. Check UTexas class section after the lecture.

GRADING:

Commitment and preparedness are critical to success in Physics 105. Reading assigned material and completing homework assignments will positively affect your grade.

DO NOT ALLOW yourself to get into a situation where you don't understand the material for more than one week. If you let things slip, you will have a lot of trouble catching up.

Attending the lecture and recitation is not enough. **Take notes in class and recitation. Read the relevant sections in the textbook. DO the homework. Class participation and homework can only help and are part of your grade.**

YOU NEED A MINIMUM C GRADE in 105 to pass to 106. This is an NJIT registrar rule.

The final grade in Phys 105 will be composed of the following items:

1) **Common Exams**: Three common exams will be given during the semester. The test schedule is given below. The problems in the Common exams will be a combination of multiple-choice and workout type problems. (15% each; 45% total)

Exam Schedule:

Common Exam 1	Friday,	October 2nd	8:30 – 9:55 am
Common Exam 2:	Friday,	October 30th	8:30 – 9:55 am
Common Exam 3:	Friday,	November 20th	8:30 – 9:55 am

2) **Lecture Quizzes**: A short lecture quiz will be given during each lecture. (7%)

3) **Homework**: (8%).

4) **Workshop**: The Workshop instructor will evaluate student performance at the Workshops and will report the attendance and the grades to the course instructor weekly. (10%)

5) **Final Exam**: A comprehensive test on the semester's work will be given during the Finals week. (30%)

The following grade scale will be used to assign percentage of points earned to a letter grade for the course: **NOTE GRADES LESS THAN 50% are FAILING. TOTAL GRADE <55% WILL NOT LET YOU PASS TO 106.**

A	**80-100**
B+	**75-79**
B	**70-74**
C+	**65-69**
C	**55-64**
D	**50-54**
F	**< 50**

RESOURCES:

1. Students are encouraged to meet with their instructor during office hours or by appointment to discuss any difficulty.
2. Students are encouraged to ask questions during lecture and recitation
3. The Physics Learning Center located in 401T, is open to all students. Check with schedule posted outside 401T.
4. Use the interactive learning system provided by the publisher – web site (http://www.cp7e.com from Thomson **Brooks/Cole) instructions are provided with your textbook.**

Phys 105 - Policy for Make-up Exams, Quizzes, HW - Fall 2009

LECTURE QUIZZES: There is no make-up for the lecture quizzes. Students missing a Lecture quiz receive a grade of zero for that quiz. The lecture quizzes are intended to assess the study habits of the students on the new concepts and to help them stay in step with the flow of the course. Any make-up offer will give an unfair advantage to those students since it will give them extra time to study.

Homework assignments: must be turned in by the assigned cutoff date (Typically Mondays at noon). All Homework must be turned in via the online service. No paper copies will be accepted. No late homework will be accepted.
Common Exams: 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 105 instructor AND to the Dean of Students - (973) 596-3466, 2nd floor Campbell Entry. BOTH the Physics 105 instructor and Dean of Students must concur in permitting a "make-up" common exam. Students who miss common exams that do not present documentation with 7 days of the common exam will receive a score of zero for the common exam.

In the event that the above qualification is met, a separate make-up test for the missed common quiz will not be offered. Instead, the part of the final exam relevant to the contents of the missed test will be considered for giving a grade for the missed test. The instructor will look at the final exam questions from those chapters and normalize this portion of the student's grade for the missed common quiz.

Final Exam: The standard institution policy applies to the make-ups for the final exam. In order to get an incomplete (I), the student should have met all the course requirements with a C average standing for the completed part of the semester's work. Any requests for taking the final at a different time is an anomaly and the student should be sent to the Dean of Students if he/she has a documented reason.

Honor Code Violations/Disruptive Behavior:

NJIT has a zero-tolerance policy regarding cheating of any kind and disruptive student behavior. Any incidents will be immediately reported to the Dean of Freshman Studies. In the cases the Honor Code violations are detected, the punishments range from a minimum of failure in the course plus disciplinary probation up to expulsion from NJIT with notations on students' permanent record.

No eating or drinking is allowed at the lectures, recitations, workshops, and laboratories.
Cellular phones must be turned off during the class hours and during exams.

PHYSICS 105 WEEKLY TEXT READING ASSIGNMENTS and RECITATION PROBLEMS

Lecture	Subject	Reading Assignment	Recitation Problems (Done in Class)
Aug. 31 - Sept 4			
1	Introduction.	B1, Ch.1	B1: 1, 9, 14, 17, 21, 22, 27, 31, 35, 39, 43
Sept 8- Sept 11	*(No classes Monday Sept. 7 – Labor Day)*		
2	Motion in One Dimension.	B1, Ch. 2	B1: 1, 5, 6, 7, 11, 19, 20, 21, 27, 29, 32
Sept 14 – Sept 18			
3	Vectors	B1, Ch. 3, S. 1-3	B1: 2, 3, 5, 6, 7, 11, 15, 17, 24, 27, 32, 58, 59
Sept 21 – Sept 25			
4	Projectile Motion Relative Velocity	B1, Ch 3, S. 4-5, B1	B1: 2, 6, 12, 13, 14, 16, 19, 26, 27, 29, 30

Sept 28 – Oct 2

5	The Laws of Motion	B1, Ch. 4, S. 1-4	B1: 2, 8, 9, 11, 14, 16, 17

Common Exam 1: Fri, October 2nd (B1, Chapters 1 – 3)

Oct 5 – Oct 9

6	Applications of Newton's Forces of Friction.	B1, Ch 4, S. 5-6	B1: 35, 36, 37, 38, 45, 46, 47, 48, 49, 58, 63

Oct 12 – Oct 16

7	Circular Motion Centripetal Forces	B2, Ch. 6, S. 1-2	B2: 1, 5, 7**,** 8, 9, 10, 15, 17, 53

Oct 19 – Oct 23

8	Other Applications of Newton's Laws	B2, Ch. 6, S. 3-4	B2: 21, 23, 43, 44, 50, 52, 53, 55, 61

Oct 26 – Oct 30

9	Work. Kinetic Energy & The Work-Energy Theorem. The Scalar Product of Two Vectors.	B1, Ch. 5, S. 1-2 B2, Ch. 7, S. 3	B1: 1, 7, 8, 9, 12, 17, 18

Common Exam 2: Fri, October 30th (B1: Ch. 4 ; B2: Ch. 6)

Nov 2 – Nov 6 *(11/3: Last day to withdraw from class)*

10	Gravitational Energy Spring Potential Energy. Potential Energy.	B1, Ch. 5, S. 3-4 B2, Ch. 7, S. 6	B1:5, 6, 7, 13, 18, 19, 60, 63, 68, 69

Nov 9 – Nov 13

11	Systems & Energy Conservation	B1, Ch.5, S. 6 B2, Ch. 8, S.1-4	B1: 28, 31, 32, 32, 33, 34, 35, 45 B2: 3, 7, 8, 13, 15, 17

Nov 16 – Nov 20

12	Power Work done by a Varying Force	B1, Ch. 5, S. 6 B2, Ch. 8, S. 5	B1: 48, 51, 53, 54 B2: 28, 29, 30, 32, 34, 37, 38, 43, 44, 45

Common Exam 3: Fri, Nov 20th (B1: Ch.5, B2: Ch. 7 & 8)

Nov 23 – Nov 25

13	Collisions and Impulse Conservation of Momentum.	B2, Ch. 9, S. 1-3 B1, Ch. 6, S.1-4	B1: 1,2, 4,, 14 **,** 16,17,20 B2: 1, 2, 4, 6, 13, 14, 15, 20, 21

Thanksgiving Recess Nov. 26-29 - No Classes Scheduled

11/24 (Tuesday) follows Thursday schedule

Nov 30 – Dec 4

14	Collisions in Two Dimensions. Center of Mass. Motion of a System Of Particles.	B2, Ch. 9, S. 4-6	B1: 27, 28, 30, 32, 37, 40, 41, 48 B2: 27, 28, 31, 35, 36, 37, 41, 42, 44, 67

Dec 7 – Dec 9

15	Review for Final	*Dec 10 – Reading Day*

Dec 11 – Dec 17 Final Exam (Comprehensive); date to be announced

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INSTRUCTIONS to access HOMEWORK on QUEST service of UTexas

Go to http://cns.utexas.edu/quest/support/student and follow instructions for off-campus students.

1. Click on first link (http://www.utexas.edu/eid) to get your EID and choose you password
2. Go to second link (http://quest.cns.utexas.edu/student) and enroll in class (instructor GEORGIOU)
   "10513" for section 013
   "10515" for section 015
   "10519" for section 019
   "10507" for section 007

After I approve your enrollment

3. Go back to http://quest.cns.utexas.edu/student and you will see all the Homework I assign. Click on the homework number to start to do that assignment.