Physics (SPN11) & Physics Lab (SPN11QL) Syllabus

Instructor

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Course Description

Physics & Physics Lab is an introductory course with emphasis on building basic physics concepts and knowledge of real-world physics phenomena. Students will be challenged to develop a physics worldview and problem-solving skills. All students are required to take the Physics Regents exam in June.

Course Objectives

1. To gain an appreciation for the role of physics in our daily lives and to become familiar with real-world physics phenomena.
2. To become familiar with the scientific method and the use of laboratory equipment through lab experience.
3. To use math, the language of physics, to describe complex physics phenomena and use it to solve physics problems.
4. To develop a physics worldview toward the visible and invisible worlds in which we live, and to be able to see things and events through new perspectives.
5. To build problem-solving skills so that students will be able to solve real-world problems.
6. To excel in the Physics Regents Exam in June.

Essential Questions

1. How does physics serve to improve our understanding of both natural and man-made worlds?
2. How can the principles of physics be used to describe the natural world?
3. How are mathematics used to model and investigate physical systems?
4. How do the principles of physics resolve the problems of daily life?

Course Requirements and Materials Needed

1. Lab equipment and materials (provided by school).
2. Blue/black and red pens.
3. A notepad or a stack of loose-leaf paper for note-taking.
4. A binder or several pocket folders to hold letter-size study notes and test paper.
5. A graphing calculator: TI-83 or TI-84 required.
Instructional Materials

3. Worksheet: Class worksheets for each lesson will be posted on the class website.
4. Study Notes: Study notes for each lesson will be posted on the class website.
5. PowerPoint: PowerPoint presentations for selected lessons will be posted on the class website.

Course Format

1. Lectures, class worksheet and discussions.
2. Video and multimedia presentations.
3. Laboratory investigations.
5. Textbook and prep book assignments.

Grading Policy

1. Class participation (10%)
2. Homework assignments (15%)
3. Laboratory reports (25%)
4. Quizzes/Exams (50%)

Lab Report Requirements

1. Students are required to successfully complete a minimum of 1200 minutes of laboratory work and write lab reports representing at least 24 class periods (12 labs) to be eligible to take the Regents exam in June. Lab reports should be handed in on time, as late reports will be downgraded by one letter grade for each day late. Please read the following description of NY State’s policy regarding lab reports:

   As stated in the New York State Science Core Curricula and syllabi, and in accordance with Section 8.2 of the Rules of the Board of Regents, laboratory experience is required in each of the Honors/Regents science courses: The Physical Setting: Earth Science, Chemistry and Physics and The Living Environment: Biology. Students must be engaged in laboratory activities representing a minimum of 1,200 minutes of hands-on lab work as certified by the principal. Satisfactory written reports of these laboratory experiences must be prepared by the student. Only those persons who have satisfactorily met the laboratory requirements will be admitted to the Regents science examination.

2. Each student will be issued a folder to use as the Lab Folder. All lab instruction sheets, experiment records, and lab reports must be kept in the lab folder.
3. Each student must submit the lab folder with all graded reports to be eligible for taking the Regents exam.

Regents Exam Requirements

Please note that all Regents Physics students are required to take the regents examination in June. A student who opts out of the Regents exam will be required to take a departmental final on the same day as the
Regents. The grade on that final will be factored into the student’s final grade in the course. Students who are absent from the Regents without a doctor’s note will receive a 0 as a grade for the departmental final.

Content Outline
This course is divided into:
1. Introduction, Measurement & Mathematics
2. Linear & Projectile Motion
3. Statics & Dynamics
4. Circular Motion
5. Universal Gravitation
6. Momentum, Work & Energy
7. Project: Physics in Daily Life
8. Electrostatics, Electric Fields & Potential
9. Electric Current & Circuits
10. Magnetism & Electromagnetic Induction
11. Vibration & Waves
12. Sound & Light
13. Reflection, Refraction & Diffraction
14. Quantum Physics & Atomic Nucleus

Expectations
1. Come to class daily, on time and ready to work. Missing class is not an excuse to skip a test or quiz. If a student misses a test or quiz, it is the student’s responsibility to schedule a re-take within one week.
2. Maintain a daily, complete, organized notebook and accompanying worksheets.
3. Complete and submit assignments by their due date. All homework assignments will be posted at the class website. Late assignments will not be accepted for credit per school policy.
4. Review each day’s lesson multiple times to ensure complete absorption and understanding of the material.
5. Spend an appropriate amount of time preparing for the tests, which will be cumulative, and be ready for the weekly quiz or pop quiz.
6. Maintain the condition of texts.
7. Exercise safety and common sense at all times.
8. Have mutual respect for fellow students and their right to an education.
9. Academic integrity per school policy.

Extra-Help Time
1. Physics Enrichment Time: 1st period, everyday.
2. After School Support: Project/lab groups that need technical advice, access to equipment/tools, or work on their projects can come see me after school (Wednesday through Friday).