

Physics 11 (Fall Semester 2017)

Textbook: Physics (McGraw Hill Ryerson)

** Supplementary materials will be provided by the teacher for specific curriculum topics.

Student Evaluation: student grades for this course will be assigned for the following:

(a) Quizzes	50 %
(b) Assignments/Activities	20 %
(c) Final Exam	<u>30 %</u>
Total	100 %

- The Physics 11 course is a continuation of the knowledge and skills acquired in the physics section of the Science 10 course and is designed to help prepare students to proceed into the Physics 12 course.

- Physics 11 is designed for students planning on furthering their post - secondary education in the field of science, engineering, etc. or those students who plan on attending community college with a focus on technological training such as instrumentation, power engineering, etc.

- The Physics 11 course requires students to have **strong math skills** as well as **the ability to analyze new problems** and determine the best method by which to solve each problem.

- The Physics 11 course material is covered at a rapid pace. Students should attend class regularly and put forth a conscientious effort in quizzes, assignments and homework.

- Students require a scientific calculator (not necessarily graphing.)

- Assignments form an important part of the Physics 11 course and will be assigned to allow students time for their completion. Students are to have completed assignments ready to be handed in at **the beginning** of the class period in which they are due. **Assignments are not to be completed during the class in which they are due.** Assignments not handed in on the due date will be reduced in value by 10 % per day. Once the corrected assignments have been handed back to students no further assignments will be accepted and will receive a grade of zero.

- Students who are absent for family trips, sporting events outside of school teams, etc. will not be provided with “work packages” to complete and will be expected to get all missed materials from classmates **upon their return.**

- In the event that a student is **excused absent** during the writing of a quiz, he/she will write it during the first class upon their return, in the school learning centre.

- In the event that a student is **unexcused absent** during the writing of a quiz, he/she **will not** be given the opportunity to write the quiz and receives a grade of zero for that quiz.

Please note: An unexcused absence is one in which parent notification is not provided. Some examples of unexcused absences are listed below:

(i) In school but not in class (i.e. skipping class)

(ii) Vacations taken outside of scheduled school holidays

(iii) Participation in activities not authorized or organized by the school (ex: external sporting events).

- Extra help for students will be provided before and after school hours. Students are encouraged to seek help with curriculum areas of difficulty before new material is covered.

**** Students are reminded that extra help will not be available the day of a scheduled quiz or assignment due date.**

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SAERC – Fall Semester 2017 - Physics 11 Curriculum Topics

(1) What is physics ?

- (i) Dynamics vs Kinematics
- (ii) Rearranging and solving equations
- (iii) Metric system
- (iv) Scientific Notation
- (v) Units (Base/Derived)
- (vi) Unit conversion (Factor label method)

(2) Motion (velocity)

- (i) Frames of Reference
- (ii) Coordinate systems
- (iii) Vector vs scalar quantities
- (iv) Vectors (component/resultant)
- (v) Distance and displacement
- (vi) Speed vs velocity
- (vii) Position - time graphs
- (viii) Positive and negative velocities
- (ix) Instantaneous velocity
- (x) Velocity - time graphs

(3) Motion (acceleration)

- (i) Average acceleration (a)
- (ii) Constant acceleration
- (iii) Displacement and acceleration
- (iv) Gravitational acceleration (g)

(4) Forces

- (i) Types of forces (F)
- (ii) Newton's Laws of motion
- (iii) Mass vs weight
- (iv) Frictional force (F_f)
- (v) Net force and acceleration (F_{net})

(5) Motion in One and Two Dimensions

- (i) Graphing and vector addition
- (ii) Vectors in one and two dimensions
- (iii) Using trigonometry to solve vectors
- (iv) Resolving vectors
- (v) Inclined planes and forces
- (vi) Rotational motion
- (vii) Pulleys and forces

(6) Momentum

- (i) Momentum and impulse (p)
- (ii) Closed and open systems
- (iii) Conservation of momentum (1 Dimension)
- (iv) Internal and external forces
- (v) Conservation of momentum (2 Dimension)

(7) Work and Energy Conservation

- (i) Work and force direction (w)
- (ii) Power (P)
- (iii) Kinetic energy (E_k)
- (iv) Potential energy (E_p)
- (v) Mechanical energy conservation (E_m)
- (vi) Collisions

(8) Waves and Energy transfer

- (i) Mechanical waves
- (ii) Types of waves (trans and long)
- (iii) Wave properties (velocity, wavelength, frequency, amplitude)
- (iv) Wave interference (construct and destruct)
- (v) Sound waves (mach number)
- (vi) Reflection and refraction
- (vii) Standing waves
- (viii) Doppler effect
- (ix) Electromagnetic waves
- (x) Light waves
- (xi) Reflection and refraction
- (xii) Snells Law