



**PATTISON HIGH SCHOOL**

We don't teach a class, we teach individual students in a class

## **Physics 12**

**Winter Semester 2022 – Period 3**

Room 119

Mr. Vandervelde

*david.vandervelde@pattisonhighschool.ca*

The intent of Physics 12 is to build on and extend beyond the basic concepts of Physics 11. The course itself involves a deeper level of critical thinking and is more rigorous mathematically and conceptually. The course is based on four big ideas and will also include seven core competencies and six curricular competencies. Physics 12 is a course with both difficult calculations and abstract concepts that require the application of learned knowledge. Students are encouraged to evaluate and reflect on their own learning, evaluate other students' problem solving methods, and apply this knowledge to real-world applications. They will apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information.

### **Big Ideas:**

1. Measurement of motion depends on our frame of reference.
2. Forces can cause linear and circular motion.
3. Forces and energy interactions occur within fields.
4. Momentum is conserved within a closed and isolated system.

### **Course Units:**

1. Physics 11 Review
2. Momentum and Impulse
3. Torque
4. Circular Motion and Gravitation
5. Electrostatics
6. Magnetic Fields and Induction
7. Special Relativity

### **Mark Distribution:**

Participation and Assignments: 10%

Quizzes: 20%

Unit Tests: 40%

Midterm: 15%

Final Exam: 15%

**Course Materials Needed:**

- All material will be provided as handouts
- Scientific calculator
- Binder and lined paper

**Calculator:**

A scientific calculator that can perform trigonometric functions is required for this course. A graphing calculator is not required, and cell phones are **not** allowed to be used as calculators. Calculators cannot be shared during tests.

**Homework:**

There will be in-class assignments throughout the semester, which will be completed during class time and handed in at the end of the class. If they are handed in at a later date, assignments may be penalized for lateness. Everyday homework problems will be checked periodically for anecdotal purposes but will not affect your overall grade.

Keep in mind that homework and assessments should be organized and thorough - you must show the original formulae, units of measurement, and each step in your calculations, as well as significant digits. Most of the course is calculative, but written explanations will be required for some questions.

**Absences:**

If you miss a class, it is your responsibility to ask for homework you may have missed, and it will be up to you to hand in any work that was due during your absence.

Notify your teacher in advance if you know that you will be absent for a test. Missing tests because of an unexcused absence will result in a score of zero.

**Extra Assistance:**

Additional assistance is available – I am available at the school each day from about 8:20am to 4:10pm. You may message me on Microsoft Teams or via email me anytime, and I will respond when I am able. I can also send solutions to questions via Teams as a written response (changed into an Adobe file).

**Code of Conduct:**

Students are expected to adhere to the code of conduct at all times. This includes being on time for class, being in uniform and using English while in class. Cell phones are to be used only to listen to music – if technology becomes a distraction it may be confiscated, and the student may lose the right to use technology in class if it is a recurring issue.

**First Peoples Principles of Learning** – *Learning Involves Patience and Time*