|  |  | **Course Outline and Evaluation Summary****Course Code**  |  |
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|  | Title of Course: Grade 12 University Preparation Physics  | 416-395-3210 x20095 |
|  | Department: Science |  |

| **Course Description** |
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| This course includes selected topics in physics. Student activities offer inductive investigation of some of the topics, applications of the topics, and provide students with the opportunity to develop skills related to problem solving, laboratory procedures, application to physical and mechanical situations, as well as providing a foundation for future science courses. **Prerequisite:**  Physics, Grade 11, University Preparation |

| **Course Evaluation**Course evaluations incorporate one or more of the achievement categories (KICA). A brief description of each category can be found [here](https://www.dcp.edu.gov.on.ca/en/assessment-evaluation/categories-of-knowledge-and-skills). The final grade is calculated using the weighted percentages below. |
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| **Term Work:** | **A variety of tasks where you show your learning and have marks assigned using the Achievement Categories/Strands** | **Summative****Evaluation:** | **Marked summative tasks which assess your learning on the entire course** |
| 70% | 15 % | Knowledge & Understanding | 30% | 10% | Summative project |
| 20 % | Thinking & Inquiry |
| 25 % | Application | 20% | Final Exam  |
| 10 % | Communication |

| **Learning Skills** |
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| Learning skills provide Information to help students understand what skills, habits & behaviors are needed to work on to be successful. These are not connected with any numerical mark. A brief description of each skill can be found [here](http://www.edu.gov.on.ca/eng/policyfunding/growsuccess.pdf#page=17). **Responsibility, Organization, Independent Work, Collaboration, Initiative and Self-Regulation**E – Excellent G – Good S – Satisfactory N – Needs Improvement |

| **Required Materials:** Any educational resource required for this course will be provided by the school. It is the student’s responsibility to come to class with these materials: 3 ring binder, loose-leaf paper, graph paper, scientific calculator, pen(s), pencil(s), ruler and scissors.  |
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| **School/Departmental/Classroom Expectations** |
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| **Attendance:** The student is expected to attend class on time. Parents/guardians will be contacted if lates/attendance becomes an issue/hindrance. If the student knows about an absence in advance, they should contact the teacher.**Plagiarism/Cheating:** A mark of 0 will be assigned for any work submitted that does not belong to the student. A mark of 0 will be assigned to a student who was found to have cheated. Parents/guardians will be informed.**Missed Work:** If a student is absent from class, (e.g. illness, sports team) it is **their** responsibility to find out what they have missed and to catch up. The student is responsible for completing all of the work that was missed due to an absence. If a student misses an assignment or test without a legitimate explanation and documentation, marks up to and including the full value of the evaluation may be deducted. Make-up tests must be arranged to be written.**Late Work:** Late work may result in a deduction of marks up to and including the full value of the evaluation. |

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| **Course Assessment Tasks** |
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| ***Unit/Topic/Strand*** |  ***Big Ideas*** | ***Major Assignments / Evaluations*** | ***Estimated Duration*** |
| Unit 1 - ***Dynamics*** | * Forces affect motion in predictable and quantifiable ways.
* Forces acting on an object will determine the motion of that object.
* Many technologies that utilize the principles of dynamics have societal and environmental implications.
 | LabsQuizzesUnit test | 22 hours18 classes |
| Unit 2 - ***Energy and Momentum*** | * Energy and momentum are conserved in all interactions.
* Interactions involving the laws of conservation of energy and conservation of momentum can be analysed mathematically.
* Technological applications that involve energy and momentum can affect society and the environment in positive and negative ways.
 | LabsQuizzesUnit test | 22 hours18 classes |
| Unit 3 - ***Gravitational, Electric, and Magnetic Fields*** | * Gravitational, electric, and magnetic forces act on matter from a distance.
* Gravitational, electric, and magnetic fields share many similar properties.
* The behaviour of matter in gravitational, electric, and magnetic fields can be described mathematically.
* Technological systems that involve gravitational, electric, and magnetic fields can have an effect on society and the environment.
 | LabsQuizzesUnit test | 25 hours20 classes |
| Unit 4 - ***The Wave Nature of Light*** | * Light has properties that are similar to the properties of mechanical waves.
* The behaviour of light as a wave can be described mathematically.
* Technologies that use the principles of the wave nature of light can have societal and environmental implications.
 | LabsQuizzesUnit test | 20 hours16 classes |
| Unit 5 - ***Revolutions in Modern Physics: Quantum Mechanics and Special Relativity*** | * Light can show particle-like and wave-like behaviour, and particles can show wavelike behaviour.
* The behaviour of light as a particle and the behaviour of particles as waves can be described mathematically.
 | LabsQuizzesUnit test | 15 hours12 classes |
| Culminating and Other Task(s) |  | Summative projectFinal Exam | 5 hours4 classes |