

**PHYSICS**  
**Science**  
**Electricity & Magnetism**  
203-NYB-05 (all sections)  
Fall 2019

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<b>Pre-requisites</b>	Mechanics (203-NYA-05), Calculus I (201-NYA-05)									
<b>Co-requisites</b>	Calculus II (201-NYB-05)									
<b>Ponderation</b>	3-2-3 (3 hours of lecture, 2 hours of labs, and 3 hours of work outside class for each 5 hours of class time)									
<b>Course objectives</b>	<p>The aim of this course is to analyze different physical situations and phenomena in terms of the fundamental laws of electricity and magnetism. This includes an analysis of: physical situations involving static electric charge, direct current circuits, magnetic fields and magnetic induction, alternating current circuits as well as experimental verification of some of the laws of electricity and magnetism.</p> <p>Detailed information regarding the objectives and standards for this course and the specific performance criteria is available at <a href="https://www.dawsoncollege.qc.ca/physics/program-documents/science/">https://www.dawsoncollege.qc.ca/physics/program-documents/science/</a>.</p>									
<b>Course competencies</b>	<p>This course will allow the student to fully achieve the competency:</p> <p>OOUS: Analyze various situations and phenomena in physics using the basic laws of electricity and magnetism.</p> <ol style="list-style-type: none"><li>1. Analyze situations in physics associated with static electric charge and electric current.</li><li>2. Analyze situations in physics associated with magnetism and magnetic induction.</li><li>3. Apply the laws of electricity and magnetism.</li><li>4. Verify experimentally a number of laws of electricity and magnetism.</li></ol> <p>This course also contributes to partially achieve the competency:</p> <p>OOOU: Apply acquired knowledge to one or more subjects in the sciences.</p> <ol style="list-style-type: none"><li>1. Recognize the contribution of more than one scientific discipline to certain situations.</li><li>2. Apply the experimental method.</li><li>3. Solve problems.</li><li>4. Use data-processing technologies.</li><li>5. Reason logically.</li><li>6. Communicate effectively.</li><li>7. Show evidence of independent learning in their choice of documentation or laboratory instruments.</li><li>8. Work as members of a team.</li><li>9. Make connections between science, technology and social progress.</li></ol>									
<b>Evaluation</b>	<p>The Institutional Student Evaluation Policy (ISEP) is designed to promote equitable and effective evaluation of student learning and is therefore a crucial policy to read and understand. The policy describes the rights and obligations of students, faculty, departments, programs, and the College administration with regard to evaluation in all your courses, including grade reviews and resolution of academic grievance. ISEP is available on the Dawson website.</p> <p>There are two grading schemes. <b>Your final grade will be the higher of the two schemes.</b></p> <table><tr><td>Assignments, quizzes and class tests<sup>y</sup></td><td>55%</td><td>35%</td></tr><tr><td>Laboratory activities</td><td>15%</td><td>15%</td></tr><tr><td>Final examination</td><td>30%</td><td>50%</td></tr></table> <p><sup>y</sup>Your teacher will provide a detailed breakdown of these components and a tentative test schedule during the first week of class.</p>	Assignments, quizzes and class tests <sup>y</sup>	55%	35%	Laboratory activities	15%	15%	Final examination	30%	50%
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In order to pass the course, students must show a basic understanding of the course material at the level covered in the lectures and in the lab. This is achieved by attaining a final grade of at least 60%, calculated according to the evaluation scheme above. **Note: course work not submitted by the due date may be penalized at the teacher's discretion.**

**Reference materials**

1. Your teacher will tell you which **one of the two textbooks** will be used in your section and whether you need an access code or not for the online homework system.

**Serway custom package for Dawson College NYB** containing excerpts from *Physics for Scientists and Engineers (with Enhanced WebAssign)* by Serway & Jewett, 9th edition;  
or

**Knight custom package for Dawson College NYB, 2nd edition**, containing excerpts from *Physics for Scientists and Engineers (with Mastering Physics)* by Knight, 4th edition.

The custom packages are available at the bookstore and include a semester-long access code for the online homework system. Used textbook generally do not include an access code.

2. **Library copies:** Copies of the textbook are available on reserve in the Dawson Library.

**Teaching methods**

The material will be presented using a mix of active learning activities, lectures, in-class problem solving, laboratory experiments and demonstrations. Laboratory periods will be used for experiments as well as class tests and lectures.

**Attendance & participation**

Although class attendance is not compulsory, students should make every effort to attend all classes. In the event that a class is missed, the student is responsible for all material covered or assigned during that class. **Attendance during laboratory experiments and for class tests is however compulsory.** In the rare event that a student for valid reason (*e.g.* due to an intensive course, illness, *etc.*) is or anticipates to be absent during a laboratory experiment or for a class test, the student **must**, where possible, inform the teacher and provide the necessary documents before the absence or, at the latest, on the day of their return. If the absence is excused, students will have the opportunity to complete the assessment.

All other assessments (readings, quizzes, lab activities, *etc.*

