

<p>Course Description:</p> <p>This course enables students to deepen their understanding of physics concepts and theories. Students will continue their exploration of energy transformations and the forces that affect motion, and will investigate electrical, gravitational, and magnetic fields and electromagnetic radiation. Students will also explore the wave nature of light, quantum mechanics, and special relativity. They will further develop their scientific investigation skills, learning, for example, how to analyze, qualitatively and quantitatively, data related to a variety of physics concepts and principles. Students will also consider the impact of technological applications of physics on society and the environment.</p>	<p>Level: University</p>
	<p>Credit Value: 1.00</p>
	<p>Pre-requisite: SPH3U</p>
	<p>Department: SCIENCE</p>
	<p>Course Fees: None</p>


<p>Textbooks & Resources:</p> <ul style="list-style-type: none"> • Growing Success: Assessment, Evaluation and Reporting in Ontario Schools • The Ontario Curriculum Grades 11 and 12 Science (Revised) • Nelson Physics 12 • Please see pages from and hand-outs including: SATEC student agenda, “SATEC Science Department Evaluation Policy” & “TDSB Science Laboratory Safety Rules and Lab Procedures”
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<p>Course Evaluation: Student Evaluation consists of three components...</p>											
<p>1) Learning Skills & Work Habits:</p> <p>Students are evaluated on 6 Learning Skills & Work Habits and are evaluated on a scale of Excellent (E), Good (G), Satisfactory (S) & Needs Improvement (N) and reported on the report card.</p>	<p>The skills and habits consist of:</p> <ul style="list-style-type: none"> • Responsibility • Organization • Independent Work • Collaboration • Initiative • Self-Regulation 		<p>Skills and work habits are not included in the student’s final mark unless specified in the curriculum expectations.</p>								
	<p>2) Term Mark (Assessment of Learning):</p> <p><i>It is the student’s responsibility to submit evidence of the term’s learning in a complete and timely manner.</i></p> <p>Student performance standards for knowledge and skills are described in the curriculum Achievement Chart. The curriculum is assessed in four categories:</p>	<p>The term evaluation consists of:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>• Knowledge</td> <td style="text-align: right;">21%</td> <td rowspan="4" style="background-color: #cccccc; text-align: center; vertical-align: middle;">70%</td> </tr> <tr> <td>• Inquiry</td> <td style="text-align: right;">21%</td> </tr> <tr> <td>• Communication</td> <td style="text-align: right;">14%</td> </tr> <tr> <td>• STSE</td> <td style="text-align: right;">14%</td> </tr> </table>		• Knowledge	21%	70%	• Inquiry	21%	• Communication	14%	• STSE
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• Inquiry	21%										
• Communication	14%										
• STSE	14%										
<p>3) Final Evaluation (Assessment of Learning):</p> <p>The written exam will be administered during the school’s final exam schedule. The final evaluation accounts for 30% of the final mark.</p>	<p>The final evaluation consists of:</p> <ul style="list-style-type: none"> • Written Exam 		<p style="text-align: center;">30%</p>								
	<p>Final Mark = 70% Term Mark + 30% Final Evaluations</p>										
<p>For a detailed description on Course Evaluation, see “How Did I Get That Mark!” at www.satec.on.ca</p>											
<p>Course Conduct Policies: See Student Agenda.</p>											

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Scarborough Academy for Technology,



Course Outline:			
Unit	Description	Approximate Length	Major Unit Evaluation
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	5 weeks	
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 analyzed mathematically. Technological applications that involve energy and momentum can affect society and the environment in positive and negative ways.	4 weeks	Energy and Mechanical System Project
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 behavior 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.	2 weeks	
The Wave Nature of Light	Light has properties that are similar to the properties of mechanical waves. The behavior of light as a wave can be described mathematically.	2 weeks	Technology and Light Project
Revolutions in Modern Physics	Light can show particle-like and wave-like behavior, and particles can show wave-like behavior. The behavior of light as a particle and the behavior of particles as waves can be described mathematically. Time is relative to a person's frame of reference. The effects of relativistic motion can be described mathematically. New theories can change scientific thought and lead to the development of new technologies.	2 weeks	
Skills & Careers	Scientific investigation skills and career exploration.	2 weeks & within each unit	Physics Careers Project
Note:	At least 2 of the above 3 projects will be assigned. All of the above units will also include tests, quizzes, labs, and assignments.		
Note: The order of the units of study may change due to student needs and resources available during the course.			

<p>General Information:</p> <p>1 – As per SATEC school policy students are expected to come to class:</p> <ul style="list-style-type: none"> a) in uniform and, b) with cell phones, mp3 players etc... unseen and not in use during class time. <p>2- To be successful in Science, students are expected to:</p> <ul style="list-style-type: none"> a) come to class prepared with pen/pencil, paper binder and resources for your particular Science course, b) demonstrate academic honesty with their own work and when working with others, c) complete assignments in a timely manner and, d) follow necessary safety rules and procedures of a Science Lab. <p>Note: For clarification of any of the above issues please see the SATEC agenda along with our own SATEC Science Department Evaluation Policy and/or the TDSB defined Science Laboratory Safety Rules and Lab Procedures presented the first week of class and stored at the front of your notebooks for future reference.</p> <p>3- To seek extra help:</p> <ul style="list-style-type: none"> a) speak to your Science Teacher and schedule a time to meet, b) use the school's homework club to access peer tutors and/or, c) speak to your guidance counsellor to arrange for a tutor. 	<p>Science Department deadlines and plagiarism policy.</p> <p>Each assignment will have a due date. Handing in an assignment after the due date may result in a deduction of marks at the discretion of the teacher.</p> <p>Students must be in class on dates of any major assessments. IF you miss a major assessment (i.e. unit test, exam, presentation) you must give your teacher a note written and signed by your doctor or parent stating the health reasons that kept you from class. Without a doctor's note, you will receive a mark of zero for that missed major assessment.</p> <p>-If you know ahead of time that you will have an appointment, field trip, game, etc at the same time as the major assessment, you must either arrange with your teacher to complete the assessment before the scheduled date, or cancel your other plans so you can attend the evaluation.</p> <p>Plagiarism includes: copying another student's work, buying essays, copy/paste web info and call it your own work, using information from print or internet media without identifying the source. To avoid plagiarism: Do not cheat; Do not copy. Keep your eyes on your own paper during tests and exams. Do not steal intellectual property. Reference information properly (MLA)</p> <p>We only need to <u>suspect</u> cheating to penalize you. There will be no warnings, only marks of zero.</p>
<p>This course meets ICT SHSM program requirements.</p> 	

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