IB Physics Course Outline

Victoria Park Collegiate Institute, TDSB
The IB Curriculum: Diploma Programme Group 4: First Exam 2016
Year I and Year II
Assistant Curriculum Leaders:
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Course Description

Physics is an experimental science that combines academic study with the acquisition of practical and investigational skills. It is often called the most fundamental of the experimental sciences, as it seeks to explain the universe itself from the very smallest particles to the vast distances between galaxies. Over the two years, this course enables students to deepen their understanding of physics through the study of Newtonian mechanics, electromagnetism and Thermodynamics. Students will have opportunities to design investigations, collect data, develop manipulative skills, analyse results, collaborate with peers, and increase their abilities in the use of mathematics.

Resources

Texts: Giancoli *Physics* (Year I: 5th ed., Year II: 6th ed.)
Note: Textbooks are lent to students and must be returned by the end of the course.
Replacement cost if lost is $150.00

IB Course Aims:

Through studying physics, students should become aware of how scientists work and communicate with each other. While the scientific method may take on a wide variety of forms, it is the emphasis on a practical approach through experimental work that characterizes the sciences.

The aims enable students, through the overarching theme of the Nature of science, to:

- appreciate scientific study and creativity within a global context through stimulating and challenging opportunities
- acquire, apply and use a body of knowledge, methods and techniques that characterize science and technology
- develop an ability to analyse, evaluate and synthesize scientific information
- develop and apply experimental and investigative scientific skills including the use of current technologies and communication skills
- develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities and, as global citizens, of the ethical implications of using science and technology
- develop an appreciation of the possibilities and limitations of science and technology along with the relationships between scientific disciplines and their influence on other areas of knowledge.

Curriculum Content

Year I	Year II
Measurements and Uncertainties	Mechanics: Forces
Mechanics:Motion	Circular motion and gravitation
Mechanics: Forces	Mechanics: Energy and Momentum
Mechanics: Energy	Electricity and Magnetism: Electric Fields
Atomic, nuclear and particle physics	Waves: Light and Option C (Imaging)
Waves	Energy production
Electricity and Magnetism: Circuits and Electromagnetism	Thermal physics
Group 4 project	**Internal Assessment** (Individual Investigation)

Order of instruction may vary.

Course Evaluation

IB Learner Profile

Through the study of chemistry, students will have opportunity to develop their skills in a number of areas: thinking, social, communication, self-management and research. The course will help students develop the ten attributes valued by IB World Schools: inquirers, thinkers, communicators, risk-takers, and knowledgeable, principled, open-minded, reflective, caring and balanced. Physics will afford students rich opportunities to make links to how scientific knowledge is gained.

Teaching/Assessment and Evaluation Strategies

A range of instructional strategies will be used to address student needs. These teaching strategies will be inquiry-based, conceptually focused, contextualized, collaborative, differentiated and informed by assessment. Students are given opportunities to learn through assessment before evaluations. Examples of assessments can include: quizzes, unit tests, exams, projects, research papers, practical activities (labs), presentations and primary document analysis.

Assessment Outline/Achievement Chart

Assessment will be based on the IB Course Objectives 1, 2 and 3. The weightings reflect the emphasis of these objectives found in the final IB exam. Report card marks will be determined using percentage weights shown in the chart below.

Year	Year I				Year II			
Report Period	October	February	April	June	October	February*	April*	June*
Midterm	0	30	10	10	0	40	40	40
Labs/IA	20	20	20	20	20	20	20	20
Term	40	40	40	40	40	40	40	40
Final Exam	0	0	0	30	0	0	0	0
	Marks reflect Ontario grades				*Mark will reflect IB predicted grade			

Students in Year I will be required to complete their Group 4 project consisting of no more than 10 hours of "practical" time.

Students in Year II will be required to complete an Individual Investigation of no more than 10 hours of class time (includes practical time, consultation and review) worth 20% of their final grade. The assessment criteria for this are given below.

Personal Engagement	Exploration	Analysis	Evaluation	Communication	Total
2 (8%)	6 (25%)	6 (25%)	6 (25%)	4 (17%)	24 (100%)

Late Assignments/Missed Evaluations

5% per school day will be deducted for late assignments at the teacher's discretion
Missed tests or quizzes may result in a mark of zero if appropriate documentation is not provided. Chronic absences from evaluations may result in referral to administration.

Accommodations

Accommodations refer to the teaching strategies, supports, and/or services that are required in order for a student to access the curriculum and demonstrate learning. Students who have an IEP are entitled to the accommodations specified in their plans.

The following considerations apply to each of the units in this course: *Instructional and assessment activities must take into account the strengths, needs, learning expectations and accommodations as identified in the Individual Education Plan whether students are formally identified or not.* (Regulation 181/98)

Policies and Procedures

See the Victoria Park C.I. Student Agenda for additional details on School Policies on Homework, Attendance, Lateness, Missing and Late Assignments and Assessments, Course Modifications and Academic Honesty. Academic honesty serves to promote personal integrity, engender respect for the integrity of others and their work, and ensure that all students have an equal opportunity to demonstrate the knowledge and skills they acquire during their studies.