



Durham District School Board
Brooklin High School
Science Department
Course Outline: PHYSICS, Grade 12, University

Department Head: D. O'Neill

Teacher:

Course Code: SPH 4U1 (Credit Value: 1.0)

Prerequisites: SPH 3U1

Overall Curriculum Expectations:

Students will analyze the interrelationships between physics and technology, and consider the impact of technological applications of physics on society and the environment. They will further develop their scientific investigation skills, learning how to analyse data related to a variety of physics concepts and principles.

Course Description:

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.

Course Strands:

Scientific Investigation Skills and Career Exploration, Dynamics, Energy and Momentum, Gravitational, Electric, and Magnetic Fields, The Wave Nature of Light, and Revolutions in Modern Physics: Quantum Mechanics and Special Relativity

Units of Study:

Unit 1: Dynamics

Unit 2: Energy and Momentum

Unit 3: Gravitational, Electric, and Magnetic Fields

Unit 4: The Wave Nature of Light

Unit 5: Revolutions in Modern Physics: Quantum Mechanics and Special Relativity

Teaching Strategies:

A variety of teaching and learning strategies will be incorporated throughout the course.

Assessment & Evaluation:

Assessment and evaluation will encompass all four categories of achievement: **Knowledge and Understanding; Thinking/Inquiry; Communication; and Making Connections/Application.** This course will involve a number of assessment and evaluation strategies that will provide all students an opportunity to meet with success.

Term Work: 70%

Labs and Assignments 30%

Quizzes 10%

Tests 30%

Final Summative: 30%

Final Exam 30%

Learning Skills and Work Habits:

The following Learning Skills and Work Habits are evaluated regularly using a scale of Excellent, Good, Satisfactory or Needs Improvement: **Responsibility, Organization, Independent Work, Collaboration, Initiative, Self-Regulation.**

Textbook: Nelson Physics 12 (2012) (replacement cost: \$80.00)

Class requirements: 3-ring binder, scientific calculator, pen, pencil, ruler