



# Physics Level 3, PHY333 2009

## Aims/General Learning Outcomes

- To demonstrate an understanding of concepts, principles and models and to be able to apply them to explain physical phenomena, systems and devices.
- To appreciate the power and limitations of theories and models in physics and to analyse developments in physics and physics-based applications.
- To carry out practical investigations to determine relationships, patterns, and trends in physical systems.

## Course Content

Interference of waves; standing waves in strings and pipes; harmonics and overtones; resonance; beats; Doppler Effect.

Translational motion; circular motion; rotational motion; simple harmonic motion.

The Bohr model of the hydrogen atom; the quantisation of energy; the photoelectric effect; description of the wave/particle duality of light; nuclear binding energy; conservation of mass-energy for nuclear reactions.

Direct current; capacitance; electromagnetic induction; alternating current.

## Assessment Details

The course will be assessed by

- **1 Internal Achievement Standard (5 credits)**
- **4 External Achievement Standards (19 credits)**

There will be a formative test, lasting one hour, at the end of each section.

All External Assessments will be made by NZQA during the November-December Examinations.

## Scholarship

Students will be given the opportunity to sit the Physics Scholarship Examination at the end of the year. This is a 3 hour written test. Those who choose to do so will be given scholarship-level work to complete in their own time.

## Appeals

Any queries about an assessment decision should be made to your class teacher when the assessment is handed back. Formal appeals should be made, **within one week** of the assessed work being returned to Ms Powell, Head of the Science Department, or to the Principal's Nominee, Mrs Butler, who will investigate it further.

Work done in pencil or which has 'white-out' corrections cannot be reconsidered for appeals. Appeals need to be made within one school week of receiving a result.

## Further assessment opportunities

There are no reassessment opportunities.

**Assessment Record Sheet for PHY333 in 2009**

<b>Name and number of standard</b>	<b>Credit value</b>	<b>Internal/ External</b>	<b>When assessment takes place</b>	<b>Length of assessment</b>	<b>Description of assessment</b>	<b>Result</b>
Physics 90521, Version 3.  3.4 Demonstrate understanding of mechanical systems	6	External	Formative: Week 1 of term 2  NCEA examination in November	1 period	Written test.	
Physics 90520, Version 3.  3.3 Demonstrate understanding of wave systems	4	External	Formative: Week 8 of term 2  NCEA examination in November	1 period	Written test.	
Physics 90774, Version 1.  3.1 Carry out a practical physics investigation with guidance, that leads to a mathematical relationship	5	Internal	During the school examinations, week 6 of term 3	3 hours	Students will work individually in the lab to complete a plan, gather data and write a report.	
Physics 90523, Version 2.  3.6 Demonstrate understanding of electrical systems	6	External	Formative: Week 9 term 3  NCEA examination in November	1 period	Written test.	
Physics 90522, version 3.  3.5 Demonstrate understanding of atoms, photons and nuclei	3	External	Formative: Week 4 of term 4  NCEA examination in November	1 period	Written test.	