

## 2010 SENIOR COURSE INFORMATION

Head of Department.

SUBJECT: PHYSICS

Name of Teacher: Mr Johann Fourie (MNZIP)

	Year 12	Year 13
Course Content	<ol style="list-style-type: none"> <li>1. Measurements of Physical quantities and analysis of data graphically.</li> <li>2. Motion including velocity and acceleration, kinematic equations, vectors, relative velocity.</li> <li>3. Force, mass and weight, Newtons' Laws, Vector nature of Force, Torque, Equilibrium and Centripetal Force. Hooke's Law.</li> <li>4. Momentum and Energy. Conservation Laws, Impulse, Potential and Kinetic energy.</li> <li>5. Light, reflection, refraction, concave and convex mirrors and lenses including formulae and ray diagrams, wave motion, superposition and interference.</li> <li>6. Static and DC electricity. Electric Fields, charge, Voltage, Current, Ohm's Law. Series and Parallel. Power and Energy.</li> <li>7. Electromagnetism, Magnetic fields, Motor Effect and Induction.</li> </ol>	<ol style="list-style-type: none"> <li>1. Process uncertainties in data and graphs. Using graphs to identify relationships and constants. Random and Systematic error. Lines of best fit.</li> <li>2. Translational motion ,centre of mass, impulse and conservation of momentum in 2D and forces, banked corners, circular motion and centripetal force, rotational and simple harmonic motion. Gravity , Kinematics, Torque and angular acceleration.</li> <li>3. Wave systems. Doppler Effect, resonance, pipes, strings, harmonics and interference. Spectra and diffraction gratings.</li> <li>4. DC, capacitance effect on current and voltage. , Capacitance factors, Inductance, current and voltage, time constants and electromagnetism. Faraday's Law and Lenz's Law. Transformers.</li> <li>5. AC, rms, power, current and voltage. RC, LR and LRC circuits. Impedance and Reactance of AC circuits. Resonance</li> <li>6. Atoms, Photons and Nuclei ( Enrichment)</li> </ol>
Pre Requisites	A minimum of 14 credits from Level 1 Science including the Physics standards.	A minimum of 14 credits in Level 2 Physics is required
Assessment	2.1 Measurement and data (4)-Internal 2.3 Waves (4) 2.4 Mechanics (6) 2.6 Electricity (5) 2.7 Integrated Physics (3) - Internal	3.1 Practical assessment (5)-Internal 3.3 Waves(4) 3.4 Mechanics(6) 3.5 Modern Physics (3)- Enrichment-only selected students 3.6 Electricity and Magnetism( 6)
Costs	\$35 Workbook	\$35 Workbook

