Grade 11 Physics Syllabus

2017 - 2018

Term 1

The Physics of the Atoms

1. Model of the Atom: Work done by J.J Thomson, Rutherford, Bohr, Chadwick, Geiger-Marsden experiment
2. Structure of the Atom: Particles in the atom, atomic number, mass number, isotopes
3. Radioactivity: Marie Curie's work in the field of radioactivity, radioactive emission, α emissions, β emission, Y emission, penetrating power range, effect in the magnetic and electric field, ionization power, half life
4. Nuclear Energy: Nuclear fission and fusion, Einstein's mass energy relation

Electricity and Magnetism

1. Electrostatics: electric charge, electric field
2. Current (electricity): differences between conductors and insulators, difference between electron flow and conventional current, alternating current
3. Electrical quantity: power and energy, the need for reduction in wastage of electrical energy and means of doing so
4. Circuit and components: simple circuit diagrams, circuit symbols, cells, I-V relationships, resistance, parallel and series circuits, electricity in the home
5. Electronics: half wave rectifier, differences between direct current and alternating current, V-t graph for d c and a c currents, logic gates
6. Magnetism: Permanent magnet, magnetic forces
7. Electromagnetism: Electromagnetic fields, electromagnetic forces, motors
8. Electricity and Magnetism: Loud speaker, induced e.m.f, transformers.

Term 2

Wave Motion

1. Types of Waves: Wave parameters, longitudinal and transfer waves, wave equations
2. Wave Phenomena: Reflection, refraction, diffraction, Snell's law, Young's double slit experiment
3. Sound Waves: Production and propagation, speed of sound, audio frequencies
4. Electromagnetic waves: General properties of e.m. waves, sources, applications, uses
5. Light Waves: theories of light rays
6. Reflection and refraction of Light, diffraction of light
7. Lens: Actions of lenses, image formation, experiments to find the focal length of a convex lens, optical instruments (camera, magnifying glass, projector)