Syllabus Outline

	Teaching hours
Core	**80**
Topic 1: Physics and physical measurement	**5**
1.1 The realm of physics	1
1.2 Measurement and uncertainties	2
1.3 Vectors and scalars	2
Topic 2: Mechanics	**17**
2.1 Kinematics	6
2.2 Forces and dynamics	6
2.3 Work, energy and power	3
2.4 Uniform circular motion	2
Topic 3: Thermal physics	**7**
3.1 Thermal concepts	2
3.2 Thermal properties of matter	5
Topic 4: Oscillations and waves	**10**
4.1 Kinematics of simple harmonic motion (SHM)	2
4.2 Energy changes during simple harmonic motion (SHM)	1
4.3 Forced oscillations and resonance	3
4.4 Wave characteristics	2
4.5 Wave properties	2
Topic 5: Electric currents	**7**
5.1 Electric potential difference, current and resistance	4
5.2 Electric circuits	3
Topic 6: Fields and forces	**7**
6.1 Gravitational force and field	2
6.2 Electric force and field	3
6.3 Magnetic force and field	2
Topic 7: Atomic and nuclear physics	**9**
7.1 The atom	2
7.2 Radioactive decay	3
7.3 Nuclear reactions, fission and fusion	4
Topic 8: Energy, power and climate change	**18**
8.1 Energy degradation and power generation	2
8.2 World energy sources	2
8.3 Fossil fuel power production	1
8.4 Non-fossil fuel power production	7
8.5 Greenhouse effect	3
8.6 Global warming 3	

		Teaching hours
Options SL		**15**
Option A: Sight and wave phenomena		**15**
A1	The eye and sight	3
A2	Standing (stationary) waves	2
A3	Doppler effect	2
A4	Diffraction	1
A5	Resolution	4
A6	Polarization	3
Option B: Quantum physics and nuclear physics		**15**
B1	Quantum physics	10
B2	Nuclear physics	5
Option C: Digital technology		**15**
C1	Analogue and digital signals	4
C2	Data capture; digital imaging using charge-coupled devices (CCDs)	4
C3	Electronics	5
C4	The mobile phone system	2
Option D: Relativity and particle physics		**15**
D1	Introduction to relativity	1
D2	Concepts and postulates of special relativity	2
D3	Relativistic kinematics	5
D4	Particles and interactions	5
D5	Quarks	2
Option E: Astrophysics		**15**
E1	Introduction to the universe	2
E2	Stellar radiation and stellar types	4
E3	Stellar distances	5
E4	Cosmology	4
Option F: Communications		**15**
F1	Radio communication	5
F2	Digital signals	4
F3	Optic fibre transmission	3
F4	Channels of communication	3
Option G: Electromagnetic waves		**15**
G1	Nature of EM waves and light sources	4
G2	Optical instruments	6
G3	Two-source interference of waves	3
G4	Diffraction grating	2