Sing Yin Secondary School
Physics Teaching Syllabus (2016-2017)

Form Five (for 5C, 5D & 5E)

Active Physics 3: Wave Motion	S S Tong, H K Won, P K Kwong,
Active Physics 4: Electricity and Magnetism	Y L Wong, L C Lee
	Pearson

Aims

This course of study should help students:

① learn the key knowledge and method of Physics in both qualitative and quantitative ways,
② apply what they learn to solve problems rationally in their academic and daily life,
③ deepen their sense of carefulness and safety,
④ cultivate a respect for facts,
⑤ acquire a love of logical deduction,
⑥ develop an interest in Physics by realizing its power,
⑦ appreciate the relationship between physical science and other disciplines, and
⑧ develop skills for making scientific inquiries.

Topics	**Time allotted (cycle)**
1. Laboratory safety regulations	0.1
2. Electric charges and electric forces - Electric charges - Charging and discharging methods - Hazards and applications of static electricity - Coulomb's law	2
3. Electric circuits - Electric current, energy transformation and voltage - Resistance and network of resistors - Resistance of ammeters, voltmeters and sources - **(Kirchhoff's laws)**	2
4. Electrical power and domestic electricity - Alternating current and direct current - Heating effect and electrical power - Alternating current - Domestic wiring and electrical safety	2
5. Electric field - Electric field strength - Visualizing electric fields - Special electric fields - Electric field and potential gradient - **[Method of stating potentials in a circuit]**	2

Topics	**Time allotted (cycle)**
6. Electromagnetism - Permanent magnets - Magnetic field - Magnetic fields by current-carrying wires - Electromagnets - Force on a current-carrying wire in a magnetic field	2
7. Motion of charged particles in a magnetic field - Magnetic force on a moving charge	1.5
8. Electromagnetic induction - Induced e.m.f. and induced current - Faraday's Law of electromagnetic induction - Search coil - Application of electromagnetic induction and generators - Simple a.c. and d.c. generators - Eddy currents	2
9. Transformer and power transmission - Transformer - Transmission and distribution of electricity - **[Reactance and power factor (qualitative only)]**	2
10. Wave motion - Description of waves - Transverse and longitudinal travelling waves - Factors affecting speed of wave	0.9
11. Properties of waves - Reflection and refraction - Diffraction and interference - Stationary wave	1
12. Reflection - Laws of reflection - Regular and diffuse reflection - Image formation by plane mirrors	1
13. Refraction - Laws of refraction - Total internal reflection	1

Topics	**Time allotted (cycle)**
14. Lenses - Construction rules for ray diagrams of convex and concave lenses - Measure focal length of convex lens - Linear magnification - Lens formula	1.5
15. Wave nature of light - Qualitative description of interference - Light and other electromagnetic waves	1
16. Sound - Production and propagation - Audible sound and ultrasound - Sound as a longitudinal wave - Sound and light - Pitch, loudness and quality of a note - **(Curves of equal loudness)** - **[Definition of decibel]**	1
	23

(Optional topics): If time allows, these topics should be mentioned qualitatively.
[Topics added for challenge class]: These topics are out of syllabus but useful for the students who want to challenge themselves.

- END -

Signature of Teacher-in-charge:

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Checked by:

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